

THE TREATMENT AND REHABILITATION OF TRAUMATIC PARAPLEGIC PATIENTS IN SOUTH AFRICA

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There is a growing number of accidents causing paraplegia of traumatic origin in the population of South Africa. While nearly all the survivors are hidden away in the chronic wards of hospitals or left to carry on with the help of relatives, the problem of their eventual disposal or return to community life has not as yet been sufficiently recognized, nor has any serious attempt been made to overcome it.

The most frequent causes of spinal cord damage are: (1) motor vehicle accidents, (2) stabbings and occasional gun-shot wounds, and (3) diving accidents.

As will readily be appreciated, the number of these accidents is increasing and at the same time treatment of acute cases of traumatic paraplegia is improving. This means that while the immediate mortality continues to fall there is a considerable yearly increment of severely handicapped and, for the most part, bed-ridden patients.

In countries where there is a shortage of labour or where a serious effort is made to integrate the physically handicapped person into industry, rehabilitation and vocational training has reached heights not considered possible 25 years ago. The effect of these efforts has been to diminish the drain on the finances of the State which would otherwise have to provide for the care and maintenance of these patients in hospital and their families at home. These patients have been transformed in many cases into wage earners able to keep themselves and their families without, or with minimal, recourse to state aid. In addition, and in a much more important degree, it has removed them from the category of potential recipients of charity to a degree of self-respect compatible with living and taking part in the life of a normal community.

In South Africa the problem is different — as with most problems. First, there is no shortage of labour, particularly in the unskilled or semi-skilled categories. Secondly, since it inevitably happens that a large proportion of the patients are non-Europeans, custom and job reservation precludes their employment in occupations normally carried out by Europeans. They are traditionally confined in most cases to labouring and heavy manual jobs, which are often quite impossible to consider once they are afflicted by such a severe degree of disablement as traumatic paraplegia. Thirdly, training for return to suitable employment, if such were possible, does not exist in any serious sense and pleas for consideration of this problem have so far gone unanswered.

TREATMENT

Early Treatment of Traumatic Paraplegia

The correct initial treatment of traumatic paraplegia

is difficult and involved. It is not enough that the patient is admitted to hospital and that, after a cursory examination, X-ray photographs are taken of his back or neck and a diagnosis made.

The provision of a bed in hospital is obviously essential but, in addition, it should be recognized that the nursing of these patients takes considerable experience and is more time- and labour-consuming than that of probably any other kind of patient.

Ignoring for the moment any appliance that it may be found necessary to use in treatment, it is essential to realize that these patients must be *turned every 2 hours in the day and the night*. There is no other remedy if bed-sores are to be avoided. Bed-sores are not an inevitable sequel to paraplegia and their cause can only be laid at one door — inadequate nursing. It is obvious that in order to turn a completely paralysed patient, 2 or even 3 pairs of hands, particularly if they belong to the 'frailer sex', cannot be sufficient for a heavy full-grown man without a great deal of unnecessary pulling and pushing; thereby possibly causing considerable further damage. The night staff of a busy general ward, whose duties, besides holding a watching brief on all the patients in their care, involve temperature taking, the provision of liquid refreshment, and the provision and disposal of sanitary appliances, cannot under any circumstances be expected to carry out this form of treatment. It is essential, however, to carry out 2-hourly turning in order to prevent bed-sores.

It is obvious that in a case of traumatic paraplegia there must be special considerations in nursing and it must be obligatory for matrons and superintendents to recognize that it is their responsibility to provide adequate and sufficiently skilled nursing for these cases.

It may be argued that most of the general hospitals of the Union do not possess adequate staff to deal with this problem, and certainly the occasional admission of a case of traumatic paraplegia does not warrant the provision of a special team standing by in each hospital to await such an eventuality. It is clear that the obvious solution to this problem is for a special paraplegic centre to be formed in each of the larger areas, in which this basic treatment can be carried out, economically and efficiently, without disorganizing the running of the ordinary general hospital.

In Baragwanath Hospital, under a very keen and able group of neurosurgeons, such an organization exists for the treatment of African patients. In a 40-bedded ward of acute traumatic paraplegia cases, the staff consists of one sister, two staff-nurses and nine orderlies. The cases

are admitted early—within a few hours—to this unit and, because of adequate nursing, bed-sores are certainly very rare if not unknown. Undoubtedly the provision of an adequate staff of male orderlies experienced in the treating of paraplegic cases is essential, if the patients, of whom at least 90% are male, are to be properly treated. Because of the distances involved, more centres, not confined to the treatment of Africans, are necessary if the Union is to cope with this problem. In addition it will be necessary for all medical officers in charge of units dealing with traumatic cases to realize that paraplegic patients should be transferred to such special units as soon as possible, so that they might enjoy adequate nursing from the earliest date.

Treatment of the Fractured and Damaged Cord

It is not the intention of this article to discuss the pros and cons of the advisability of the reduction of a fracture or fracture-dislocation during the first few hours following the onset of traumatic paraplegia. It is, however, necessary to state that in most cases damage to the cord has already taken place and the anatomical replacement of a fracture or a fracture-dislocation rarely influences the survival rate, except for the worse if it is hurriedly or fiercely achieved. A perfect X-ray result is of academic interest only to the surgeon and cannot often be of advantage to the patient, except possibly pinned to his identification card or passport to the next world.

Traction to the neck helps in most cases. It should be applied with moderation and is used in the initial stage to provide immobilization and to prevent further damage to a contused or battered cord. The method of traction may vary from the Glisson sling to skeletal traction by means of tongs. Anyone who has had to wear the sling for even a few hours will adequately describe its inhumanity; the kindly surgeon will turn to the use of skeletal traction.

Early Treatment of the Bladder

In 'ancient times' (not so very long ago) the general surgeons who treated retention of urine following cord damage believed that the answer to this problem was tidal drainage often followed by suprapubic drainage. The modern view, however, is strongly opposed to both these methods and in all modern paraplegic centres they have been abandoned. For the initial 3 weeks, until the degree of recovery can be estimated, intermittent catheterization is used. The argument that this method gives rise to sepsis may be discounted since, in the first place, infection is rare if the catheterization is done under normal aseptic routine, and secondly, sepsis can easily be controlled by suitable modern drugs if it does arise.

Tidal drainage, so popular 20 years ago, has been supplanted latterly by the use of suitable indwelling catheters. Likewise, suprapubic drainage has been abandoned in most centres in the treatment of paraplegic cases due to the difficulty in closing the aperture later; it is felt that this procedure further mutilates the patient who in all consciousness is handicapped severely enough by his condition.

Relief of Spasm

Once the period of spinal shock has passed, about

40% of these cases are afflicted with the distressing and painful condition of spasm. One often wonders how a patient with a transected cord can feel any pain; nevertheless, these patients are in a miserable state. They lie in bed curled up, with their knees against the fore-part of their chests, their feet in equinus, as the waves of spasm pass down their bodies.

Undoubtedly the presence of bed-sores aggravates this condition, but the major effect of this almost continuous spasm makes it impossible to turn the patient's mind to anything constructive such as reading or occupational therapy. In order to combat the spasm use is made of physiotherapy, the injection of sclerosing agents into the spinal canal and, on occasion, operations to cut the nerve roots or spinal cord.

TRAINING AND REHABILITATION

Primary Training of Paraplegics

Once the initial phase of treatment has been completed and the complications have been mastered, physiotherapy becomes the most important form of treatment. Training and development of the remaining normal muscles, particularly of the shoulder girdle and back, are undertaken in order that the patients may regain a degree of mobility by using their arms.

In addition training is started for the normal functions of life, i.e. dressing, getting in and out of a chair and probably most important of all, management of the bladder and lower bowel.

The majority of patients move about most of the time by means of a wheel-chair but many are taught the tripod gait, using orthopaedic appliances such as the foot calipers and knee braces.

Rehabilitation

It is at this stage that the idea of vocational training should be introduced. The mind of the patient should be orientated to what he is going to do with the rest of his life. In fact, it is nearly impossible to progress any further unless one is able to offer the paraplegic some goal or aim to which he might work. Often the patients—to whom the problem is most real—ask where they are going and to what end this tremendous effort is being made. It is no mean effort to walk across the room in calipers dragging a useless half or two-thirds of living but inanimate body. A patient to whom I spoke overseas compared crossing the room by means of a tripod gait with playing 6 hard sets of tennis. Interest in regaining mobility rapidly dies if there is no hope of returning to the outside world, so that unless hope of development is provided at this stage, the entire treatment of paraplegics becomes academic and useless as an effort to relieve human suffering.

The Problem in the Union

Under the law of the Union, medical treatment is the responsibility of the various Provinces, but once the treatment verges on rehabilitation or vocational training, then it becomes the responsibility of the Central Government. Where these 2 well-meaning bodies fail is that, although their spheres of interest are clearly defined for their own

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purposes and particularly for financial reasons, they are most careful not to overlap in this field. In fact, so careful are they on this point that nothing in the way of rehabilitation or further training reaches the paraplegic patient. One extraordinarily subtle argument is produced which renders cooperation impossible. Apparently while a patient is in hospital 'he is undergoing medical treatment' and for this reason it is assumed that he must be discharged 'fit' from hospital before he can be rehabilitated. It is obvious that this typical bureaucratic departmentalism prevents any paraplegic from receiving rehabilitative treatment, since few can afford to go far from medical care until they are ready for burial. In fact, even if they are discharged from hospital, they must have constant inspection and supervision which necessitates repeated visits to out-patient departments or visits to the patient's home by district sisters. *Once they are paraplegics they are never medically discharged.*

This fact makes it convenient for whoever draws up the chaotic rules under which humanity suffers to draw a line over which no paraplegic is able to pass, viz. a patient must be medically discharged before he is eligible to be rehabilitated. This sorry state of affairs exists in the Union today for all sections of the community; in fact, owing to the energetic and progressive tackling of the problem in Johannesburg with regard to Africans, their lot is infinitely better than that of European or Coloured patients.

What has Rehabilitation to Offer to the Paraplegic?

Rehabilitation in the modern sense is that phase of treatment that retrains a patient to take up his original occupation or, if that is not possible as in the case of most paraplegics, trains him anew to take up a gainful occupation within his powers. Overseas many industries make it their business to take into employment handicapped persons who, to their initial surprise, have been well able to hold their own on the production line with their more fortunate fellows. Most light industries can and do find places where patients without the use of their lower limbs are able to fulfil a function and honestly and without charity earn their bread.

The effect of this enlightened outlook has many advantages. First among these is the economic effect. These patients in most cases cease to be a drain on state funds—they earn their own living and continue to contribute to the well-being of society. Secondly, there is the enormous psychological boost to the patient—he regains the self-respect so necessary if he is ever to remove himself from the dust-heap. If nothing in the way of gainful activity is offered to him, he knows and feels that he has been left to rot away what remains of his miserable existence.

What Occupations can a Paraplegic Enter?

Overseas many of the light industries have places for paraplegics. Smith's Electric Clocks is one example of a firm that employs large numbers of paraplegics. In South

Africa many of our firms could take in such handicapped people if the need was pointed out to them and it was shown that these people could do a good job of work. Leather work, boot repairing, home weaving and the use of knitting machines, the use of sewing machines and many other home or factory jobs could and would be found. Training of a rehabilitative type would be necessary if such a scheme was to be a success. Placement officers of the Department of Labour would have to be orientated to this problem so that the paraplegics could be visited early in their treatment and the prospects of future employment discussed. The mere fact of such a discussion would immeasurably raise the morale of such patients.

Is the Problem Capable of Solution?

In order that something could be done for paraplegics in the Union, certain steps would have to be taken:

1. It would be necessary to establish paraplegic treatment centres at convenient places in the Union. Initially there would have to be one in the North and another in the South. The purpose of these centres would be to receive traumatic paraplegic cases as early as possible after injury and to institute correct and vigorous treatment at the earliest possible moment.

2. These paraplegic centres should have an adequate nursing staff consisting in the main of male orderlies trained to carry out their duties regarding the turning of patients in the proper manner. In addition, these orderlies should be capable of assisting the physiotherapy staff in the exercises and physical treatment.

3. There should be, in addition, a full physiotherapy staff, a large proportion of whom should be male, since the physical effort involved in training paraplegics to become mobile is heavy work.

4. The medical staff should have at least 1 full-time officer dedicated to and interested in the treatment of paraplegics. In addition, urological, neurosurgical and orthopaedic consultants who are experienced in the treatment of paraplegics would be required.

5. A good rehabilitative and vocational therapy staff with adequate apparatus at their command would be a necessary part of such a centre, together with a consulting psychiatrist to advise and help in the mental rehabilitation of the handicapped.

6. Visits from placement officers of the Department of Labour should be encouraged to orientate the patients towards future employment.

It should be noted that before such a centre is possible, a change of heart will be necessary in those in authority. They must realize that this is a real problem and that it must be tackled realistically. There is no time for pious good wishes and charity towards the handicapped and it is primarily the responsibility of those in authority to so manage their administration that the problem is adequately tackled.

THE TESTING AND CONTROL OF PHARMACEUTICAL PRODUCTS

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During the year 1950 the South African Bureau of Standards established its test laboratories for pharmaceutical products. In the early days the bulk of the products under test were intravenous fluids. During the years that followed the Bureau has been called upon to prepare specifications, e.g. for intravenous fluids, vitamin preparations, surgical sutures, insulin injections, and other forms of drugs. In some instances certain of the products for which specifications were being prepared had already been prescribed in the *British Pharmacopoeia*. Where this was the case the standard laid down by the *B.P.* was adopted as the basis for the Bureau's specification. In other instances specifications were called for products where no provision had been made either in the *B.P.* or in the *B.P. Codex*. In these instances the basis of the specifications were drawn either from the *United States Pharmacopoeia* or other national pharmacopoeias. Where no standard had been laid down the committee was forced to start *de novo* and the information had to be obtained from the manufacturers themselves.

When the Bureau first established its test facilities, there was very little in the way of a pharmaceutical manufacturing industry in South Africa. Today a number of overseas principals have established their own factories in this country or have made arrangements with organizations to manufacture for them. As a result of this increasing industry the Bureau of Standards has been called upon more and more to provide test facilities for a very wide range of manufactured pharmaceutical products, especially ethical preparations.

During these last few years the Union Tender Board has called increasingly upon the services of the Bureau with regard to the testing of products submitted against tender for Government use. From the beginning the Bureau had to submit frequent reports on the failure of many of the preparations submitted for tender or submitted against tender contract. The Bureau has similar experiences on tests conducted on behalf of various provincial authorities and their hospitals.

As the result of these failures an increasing interest was shown in the Bureau's test facilities by the various pharmaceutical manufacturers in South Africa and by the importing agents of overseas companies. As a result more and more products have been, and are continuing to be, submitted by the manufacturing industry to the Bureau for control purposes. The outcome of this is that it has been possible, where specifications exist, to grant the mark to certain manufacturers, thereby ensuring that the medical profession are getting tested products of high quality and performance and, in addition to this, there has certainly been a decrease in the number of failures experienced in tender contracts and other types of supplies to the various tender boards.

The Union Health Department, whose responsibility includes the administration of the Food and Drugs Act and the Therapeutic Substances Act, has been seeking the assistance of the Bureau in the field of testing, and today frequently submits varied samples drawn in terms of the administration of these two Acts. This work from the Union Department of Health continues to show a steady increase.

The pharmaceutical, vitamin and amino-acid assay laboratories of the Bureau of Standards, are we believe, the only laboratories of their kind in South Africa, except certain industrial control laboratories, which are equipped and have

the experience to undertake a very wide range of tests and assays necessary in the control of the testing of ethical pharmaceutical products. As a result of this activity by the Bureau, and its very close liaison with large organized buying groups and the industry, both in this country and overseas, considerable improvement has been achieved in the quality of various types of products and in the development of their manufacture.

Before the Bureau established these laboratories, it had been necessary for industry to submit its products to overseas principals in order to have control tests carried out.

The foregoing does not necessarily imply that all is well in the field of manufacture of pharmaceutical products, their supply and usage. It is our experience that only a very limited amount of products are being submitted for test by the various purchasing authorities, and frequently on a selected basis. We believe that it is in the national interest that the various purchasing authorities and the medical profession should encourage greater use of the Bureau's laboratories for this important purpose. When the considerable progress is realized that has been made to date in the field of many of the products tested (with reference to their purity, performance and stability), it will be appreciated that a far better job can be done than is presently being done, if the majority of locally manufactured and imported products were submitted to the Bureau for testing.

We are convinced, although it is very difficult to put it on paper, that the Bureau has involved the country in a considerable amount of saving through the medium of its test facilities. We are likewise convinced that in the same way the Bureau has assisted the medical profession, in the field of the practice of medicine and surgery, as a result of the improvements brought about in the quality of the various products controlled or tested by the Bureau.

We are firmly convinced that if a far wider use were made of the test facilities in the purchasing of pharmaceutical products, considerably more national saving in various fields, i.e. costs, labour, and man-hours, could be made. It is essential for doctors, in carrying out their practices and treating illness and disease, that they should know exactly what they give when administering chemotherapy. This can only be achieved when the purity, performance, and stability of more products can be substantiated by an independent test authority such as the Bureau of Standards. Large purchasers of drugs and pharmaceutical products should always prescribe requirements to a specification and should at all times ensure that they get what they have asked for. Failure to do so must inevitably result in a higher cost of medical treatment than is necessary.

It is not necessary to detail what the Bureau is capable of undertaking. We are confident that in the Pharmaceutical Products Laboratory and the various other laboratories which have been established, we can undertake the test or assay of any pharmaceutical product submitted.

If the present practice of submitting products for testing is increased, we believe that in the years to come it will be possible for South Africa to have either its own national formulary or its own pharmacopoeia, works to which the Bureau could contribute in no small way. We are also sure that more and more branches of industry would voluntarily submit their products to the Bureau mark scheme which is a form of certification and guarantee of performance.

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DIE MEDIESE KONGRES

Die 43ste Mediese Kongres van die Mediese Vereniging van Suid-Afrika sal gedurende die week 24 - 30 September 1961 in Kaapstad gehou word. Alhoewel dit nog betreklik vroegtydig is, het die organiserende komitee alreeds begin om die nodige voorbereidings vir die Kongres te tref. Die eerste omsendbriewe (in Engels en in Afrikaans) is alreeds in die uitgawes van die *Tydskrif* van 12 November en 3 Desember gepubliseer, met die doel om alle belangstellende lede so vroegtydig en volledig moontlik in te lig oor al die fasette van die Kongres.

Soos in die verlede sal daar voltallige sittings gehou word, sowel as byeenkomste van afdelings en groepe. Die wetenskaplike komitee het besluit om aan te beveel dat daar twee voltallige sittings gehou word, en as onderwerpe vir bespreking op die voltallige sittings, is *Diabetes en Die versorging van bejaardes* aanbeveel. Hierdie onderwerpe sal sonder twyfel die belangstelling van 'n groot aantal lede wek.

Die vordering wat daar gemaak is op die gebied van navorsing oor en die behandeling van diabetes gedurende die afgelope aantal jare, is niks minder as fenomenaal nie. Die studie van diabetes het eintlik 'n hele wetenskap op sy eie geword. Daarby is dit 'n onderwerp waarin dokters uit alle vertakkinge van die medisyne belangstel.

Die probleem van die versorging van bejaardes is 'n ander onderwerp wat onlangs besonder in belangrikheid toegeneem het. Daar is dwarsoor die wêreld 'n neiging tot relatiewe en absolute vermeerdering van die aantal bejaardes in die bevolking, en dit lei tot die ontstaan van mediese en ander probleme op hierdie gebied op 'n skaal wat vroeër heeltemal ondenkbaar was. Hierdie twee onderwerpe moet al op hul eie baie lede aanspoor om die Kongres by te woon.

Wat die byeenkomste van afdelings en groepe betref, het die organiserende komitee die voorneme uitgespreek om so veel as moontlik te probeer om groepsbyeenkomste te kombineer. Dit sal daartoe bydra om bespreking te stimuleer tussen lede van verwante groepe. Almal wat voordragte wil lewer word versoek om sonder versuim in verbinding te tree met die sekretaris van die betrokke afdeling deur die kongreskantoor. Die sluitingsdatums vir die ontvangs van opsommings en voltooide bydraes is 1 Junie en 1 Julie 1961 respektiewelik.

Soos in die verlede sal daar ook wetenskaplike uitstallings gehou word, en uitstallings van mediese en chirurgiese produkte en van stokperdjies (kuns en handwerk). 'n Program vir onthale sluit in 'n kongresbal en banket. Daarby sal erelidmaatskap van verskeie klubs

(sport en andere) in Kaapstad en omgewing vir kongreslede gereël word.

'n Spesiale vertoning van beeldradio beloof om besonder interessant te wees. Volgens verwagting sal geslote-baan beeldradio (in kleur) van chirurgiese operasies, wat by een of meer van die plaaslike opleidingshospitale uitgevoer sal word, en geprojekteer sal word vir 'n groot gehoor, een van die hoogtepunte van die Kongres wees. Daar sal gesinkroniseerde kommentaar deur die chirurg en 'n paneel van deskundiges wees.

'n Voornemingsvorm wat deur lede wat die Kongres wil bywoon, ingevul moet word, word op p. xxx van hierdie uitgawe van die *Tydskrif* geplaas. Die Kongreskomitee sal dit baie waardeer as lede die invul van die vorms so veel as moontlik wil bespoedig. Die Tak Wes-Kaapland wat as gashere vir die Kongres optree, koester die verwagting dat lede van die Vereniging self ook hul deel sal bydra om van die Kongres 'n groot sukses te maak.

Op kongresse soos hierdie word dit moontlik gemaak vir alle lede van die professie om op die hoogte te bly, nie net van vooruitgang op hul eie gebied nie, maar ook op alle ander gebiede van die medisyne. Daarby word die geleentheid verskaf vir kollegas en vriende, wat deur omstandighede uit mekaar gedryf het, om weer met mekaar kontak te maak.

Maar ons moet ook dieper kyk by 'n waardebeoordeling van die betekenis van kongresse soos hierdie. Ons moet aan onself die vraag stel of ons as doktersgemeenskap ons regmatige plek inneem in die wêreld. Omdat ons as mediese liggaam in die Mediese Vereniging gelukkig nog betreklik vry staan van ernstige innerlike tweespalt en onenigheid, rus daar op ons die verpligting om die tradisionele broederskap in die geneeskunde soos 'n kosbare kleinood te bewaar. Soos ons reeds al voorheen gesê het, is dit ons plig om ons eie, besondere professionele en intellektuele tradisie in hierdie land op te bou, maar terselfdertyd moet ons ten all koste voorkom dat ons geïsoleerd en op ons eie hier voortgaan sonder om ons gedurig te gaan drenk aan die groot wêreldwye stroom van mediese kennis en gebeure. Ons moet ons professionele vereniging deur sy lede en liggame so volledig moontlik inskakel by die aktiwiteite van ander nasionale mediese verenigings en van die Wêreld Mediese Vereniging. Want daar sal ons ons stem kan laat hoor buite die grense van ons eie wyk, en sal ons ook die volste moontlike voordeel put uit die grootste gemeenskaplike bron van kennis en ervaring, sowel vir onself as vir die pasiënte wat aan ons sorg toevertrou is.

CONTROLLED CLINICAL TRIALS

At a recent conference the principles, organization, and scope of controlled clinical trials were fully discussed.¹ Such trials must be carried out if new methods or preparations advocated for the treatment of disease are to be accurately assessed clinically.

Every new method of treatment of a disease must be assessed by treating patients suffering from that disease. The laboratory workers will have assayed the potency and toxicity of a new drug, but before it comes into use it is only by clinical trial that its efficacy and dangers

can be properly evaluated. Scientifically designed tests will hasten the fall from favour that is the fate of most drugs put on the market. The history of medicine abounds with examples of remedies that were long and widely used before falling into disrepute.

It is the aim of controlled clinical trials to use an experimental rather than an observational approach, although these techniques are not mutually incompatible. Emphasis is placed on objective measurements, but highly skilled objective clinical judgment needs to be incorporated in a manner that is unbiased.

Human experimentation of this nature raises important ethical problems. The doctor will need to decide when treatment, possibly of value, can be withheld from the patients in his charge, so that proper comparisons can be made. There is no easy answer to this problem. Some would say that a trial is not ethical unless it is so designed that the physician would permit himself or a near relative to be included in it. It is, however, hardly possible to make valid generalizations in connection with such a difficult ethical problem as the one under discussion—except to say that in approaching the problem of human experimentation, emotional as well as rational considerations will be encountered, and these will have to be dealt with on as mature and responsible level as possible. Every proposed trial presents its own problems which need to be considered on their merits. Generally they are not insuperable. In many instances the carefully controlled trial is more ethical than uncontrolled experimentation with unproved remedies.

The voluntary consent of the patient is regarded as essential. Ideally the patient is an active intelligent participant in the clinical research, and quite often he will accept a proposal to cooperate. But many patients are too ill or too weak for such trials. The consent of the patient's personal doctor may be important, and also the consent of all those who attend to the patient. Unnecessary risk and suffering, whether mental or physical, must be avoided.

Therapeutic trials are justified when a new remedy is introduced or when there is genuine difference of opinion about the value of a particular treatment. There is no hardship when the use of a new and unproved drug is compared with its omission. The patient receives the best orthodox treatment for the disease with the exception only of the disputed remedy included in the trial. When comparing the use of a drug with its absence it is usually desirable to give a placebo or dummy to allow for the psychological effects of taking medicine. The dummy is given to prevent the patient, and also the doctors, nurses and others, from knowing which is the control group until the results have been finally assessed (the double-blind trial). All patients are treated as if they are receiving the drug. There must be no systematic bias tending to favour one or other treatment. The groups receiving treatment must be similar in all relevant respects, except in the treatment they receive.

The organization of the controlled trial requires a special research team under experienced leadership. The participants must discuss and approve a common protocol before such a cooperative trial starts, and they must then accept the impositions of collective discipline. The design of records and the planning of the follow-up of the patients require careful thought in advance.

A final important task is the analysis of the results of a trial and the presentation in a report. Many individuals will have taken part in the whole undertaking, but one person as chief author will more likely produce an informative paper. A controlled clinical trial is a serious matter, and an enormous amount of work has to be done in its planning, execution, and publication. Some of the joint work of clinicians and statisticians which has been carried out in England in recent years in acute infections, pulmonary tuberculosis, rheumatoid arthritis, coronary thrombosis, and cancer under controlled conditions is available for study in an important book which has just become available.¹

1. Council for International Organizations of Medical Sciences (1960): *Controlled Clinical Trials—A Symposium*. Oxford: Blackwell Scientific Publications.

THE DANDY-WALKER SYNDROME

A REPORT OF THREE CASES

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Most cases of hydrocephalus in infancy and childhood are due to an obstruction; nearly half of these are the result of malformations. The well-known causes of this condition are the Arnold-Chiari malformation, herniation of the cerebellum and medulla through the foramen magnum, often associated with spina bifida or meningocele, and obstruction of the aqueduct of Sylvius—a congenital lesion often aggravated by inflammatory factors. A further well-documented syndrome consists of stenosis of the foramina of the roof of the fourth ventricle, massive dilatation of that chamber, hydrocephalus, and an anomaly of the rostral portion of the vermis. Benda¹ in 1954 proposed the term 'Dandy-Walker syndrome' for this condition. The syndrome is of particular interest to those

concerned with the investigation and treatment of hydrocephalus in infancy and childhood, since early definitive operation may obviate the need for the currently-fashionable shunting procedures. This paper concerns the case reports of 3 patients with this syndrome, 2 of which were confirmed at autopsy.

CASE 1

Clinical History

I.G., Coloured male, aged 3 years. Until the age of 2 years and 10 months the patient had been quite well. On 12 February 1959 he was hit on the head with a cricket bat, but did not lose consciousness. He was first seen a week later, complaining of headache dating from the time of the injury. Clinical examination was negative apart from congenital right ptosis. The skull X-ray showed no fracture. On 3 March 1959

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headache was still the main complaint, but the mother had noted that in the past 2 weeks the child had become drowsy. On 5 March 1959 he had a convulsion and fell out of bed. The following day he became drowsier and vomited. He had another convulsion, which was probably mainly left-sided on 8 March 1959, the day of his admission.

On examination he was irritable and uncooperative when woken. He had a right ptosis, a left external rectus muscle palsy and mild papilloedema, more marked on the left side. The left plantar response was extensor. X-rays of the skull and chest showed no abnormality. A lumbar puncture showed a normal cerebrospinal-fluid pressure with normal biochemical findings and 8 lymphocytes per c.mm. A pneumo-encephalogram was done. Slight dilatation of the lateral ventricles which were not displaced and a large shadow of air in the posterior fossa over the posterior surface of the cerebellum were not recognized as evidence of the Dandy-Walker syndrome (Figs. 1 and 2).

The sixth-nerve palsy and the mild papilloedema improved rapidly. At the time of his discharge on 18 March 1959 there

were no abnormal signs apart from the right ptosis. In view of this clinical improvement a presumptive diagnosis of cortical venous thrombosis with temporary intracranial hypertension, due to trauma, was made.

When seen on 25 March 1959 he had no complaints.

On 6 May 1959 he was readmitted with headache and vomiting and increase in the size of his head. In addition to the previously-noted ptosis he now had bilateral papilloedema and a crackpot sound on skull percussion. X-rays of the skull showed widening of the sutures. On 8 May 1959 a ventriculogram through frontal burrholes showed considerable enlargement of the lateral ventricles and a large air-filled space in the posterior fossa which was noted previously on encephalography (Fig. 5). This air was demonstrated to pass beyond the arch of the atlas (Fig. 6).

Ventricular drainage was established and on 11 May 1959 a myodil ventriculogram showed that 'myodil' flowed into the third ventricle, some remaining in the posterior fossa, whilst drops of myodil were seen high in the posterior fossa. No myodil entered the spinal canal (Figs. 3 and 4).

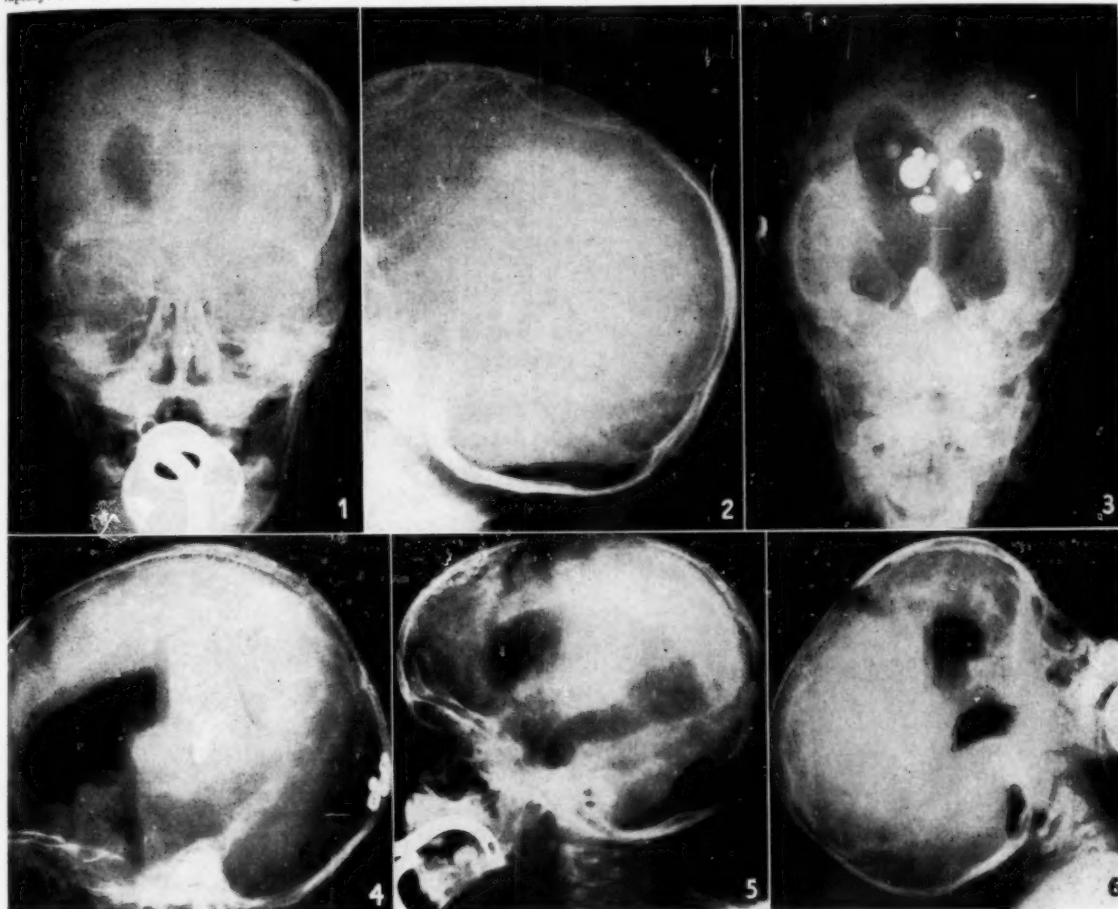


Fig. 1. Case 1. Pneumo-encephalogram; antero-posterior view showing mildly dilated lateral ventricles.

Fig. 2. Case 1. Pneumo-encephalogram; lateral view showing collection of air in the posterior fossa extending higher than usual and representing the large 'cystic' fourth ventricle.

Fig. 3. Case 1. Myodil ventriculogram; antero-posterior view with 30° tilt shows a single globule of myodil in the third ventricle with myodil droplets in the posterior fossa. The latter are in an unusual position in the 'cystic' fourth ventricle.

Fig. 4. Case 1. Myodil ventriculogram; lateral view showing the single globule of myodil in the third ventricle and droplets in the posterior fossa.

Fig. 5. Case 1. Ventriculogram; lateral view showing dilated lateral ventricles with air in the posterior fossa extending beyond the usual limits of the cisterna magna and representing the 'cystic' fourth ventricle.

Fig. 6. Case 1. Ventriculogram; lateral view showing dilated frontal and temporal horns of lateral ventricles, large third ventricle and air—extending beyond the level of the arch of the atlas in the posterior fossa. This is the most inferior part of the 'cystic' fourth ventricle.

A ventriculo-peritoneostomy was performed on 12 May 1959 and the patient was well the following morning. His respirations then became periodic and failed at 4.45 that afternoon. The lateral ventricle was needled, but the patient died.

Postmortem Findings

The body was that of a well-nourished Coloured male child. The head circumference was 48.3 cm.

A left ventriculo-peritoneostomy had been performed, connecting the left lateral ventricle with the peritoneal cavity. The tube was patent.

The lungs were pale and distended with moderate pulmonary oedema. Throughout the interior of both lungs were multiple fresh intrapulmonary haemorrhages up to 2 cm. in diameter.

Apart from congestion of the abdominal viscera the main findings were confined to the brain. The brain weighed 1,264 g. The vault and base of the skull appeared normal. The cranial nerves were all present and intact as far as could be judged macroscopically. The venous sinuses were patent and showed no evidence of thrombosis, old or recent.

After removal of the cerebellar hemispheres from the posterior cranial fossa, an excess of moderately blood-stained cerebrospinal fluid was released. The meninges overlying and surrounding the site of the burrhole transmitting the rubber catheter showed congestion and a slight fibrinous exudate, rather more than would be consistent with the recent operative trauma. This localized exudate was confined to the supratentorial compartment on the left side, and the meninges overlying the rest of the brain surface showed slight thickening and opacity only.

On section of the brain the dilatation of the lateral and third ventricles was confirmed. The aqueduct and foramina of Monro were dilated and the aqueduct measured 0.2 cm. in diameter at its narrowest part. The caudal end of the aqueduct opened into an enormously dilated fourth ventricle.

Viewed posteriorly, the roof of the fourth ventricle (Fig. 7) was represented rostrally by a thin membrane which had been partially torn during removal. On lifting this a cavity which was an abnormally dilated fourth ventricle was seen.

The displaced cerebellar hemispheres formed its lateral walls and the floor or anterior wall (medulla) had a relatively normal appearance. Above, the chamber tapered to the dilated aqueduct, through which a thick probe could easily be passed into the third ventricle. Below, the chamber narrowed as the attachment of the membrane approached the midline. The membrane was transparent but showed occasional strands of white tissue running between the lateral recesses. The vermis was at the rostral end of the membrane and measured $5 \times 3 \times 2$ cm. Normal arborizations were present. Posteriorly the membrane had been torn through the midline during removal and it was consequently impossible to state whether the foramen of Magendie was patent or not.

The membrane overlying the lateral recesses of the dilated fourth ventricle was slightly thickened and no foramina could be demonstrated.

The cranial nerves of the pons and medulla showed no obvious abnormality. Multiple sections of the left side of the brain and brain stem failed to reveal any focal lesions.

Histological Examination

Sections of the lung confirmed the presence of fresh pulmonary haemorrhages. There was no evidence of infection. Sections of cerebral cortex and midbrain showed no abnormality of note, but the overlying pia-arachnoid was congested and infiltrated by acute inflammatory exudate of moderate degree. No organisms could be demonstrated. The cerebellar hemispheres showed normal structure and arborizations.

The inner or medial surface of the lateral cerebellar hemispheres, which formed the lateral walls of the cystic fourth ventricle, were lined by ependymal cells, which showed non-specific reactive proliferation. The outer layer of the membrane was composed of pia-arachnoid continuous with that covering the cerebellum. Between these two was a layer of connective tissue which varied in density from that of the loose areolar type to dense collagenous fibres, usually in clumps, but occasionally isolated. Glial fibres and cells could be identified amongst these (Fig. 8). No medullated nerve fibres could be demonstrated. The membrane was also the site of a recent acute inflammatory reaction.

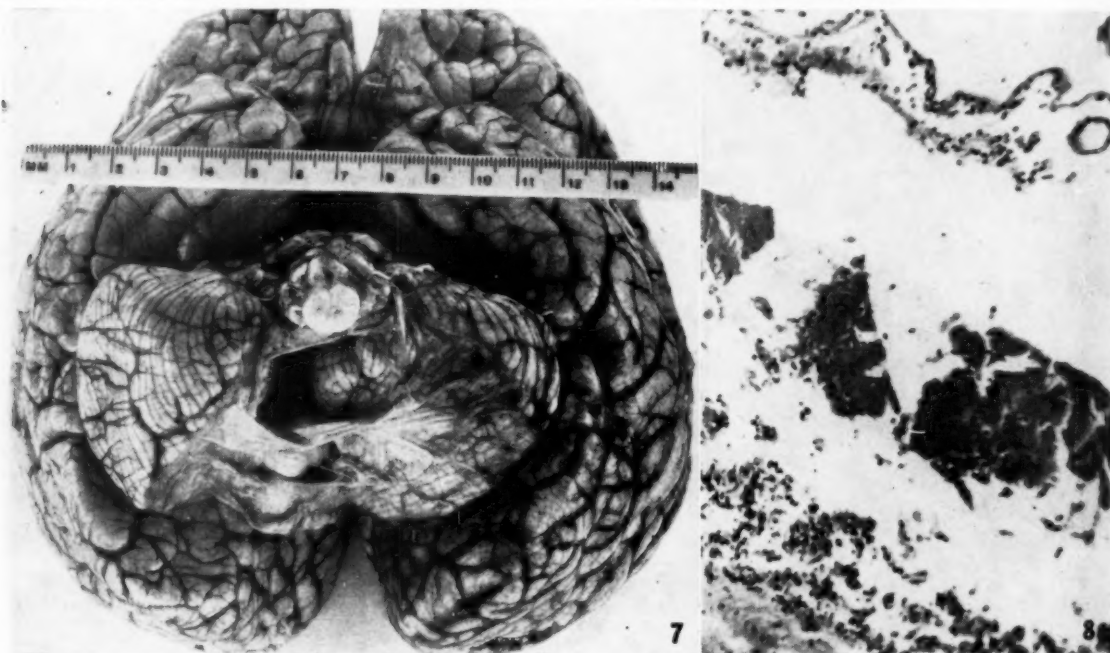


Fig. 7. Case 1. Photograph of the base of the brain showing the dilated fourth ventricle covered by the partly torn membrane.

Fig. 8. Case 1. Photomicrograph ($\times 100$) of the membrane covering the fourth ventricle, showing pia arachnoid above and glial cells and fibres arranged in clumps.

Clinical History

J.D., Euro-Asian, a large head, this he had in 1959, when severe head pain was admitted to him. He was vomiting and had nuchal rigidity.

On 24 Dec. a large fourth ventricle was excised and the patient died.

Microscopic examination showed excellent preservation of the brain tissue.

He was weaker, developed then found reflexes.

On 5 Feb. he was further treated, but he died on 10 Feb.

Postmortem

This case was a large head, moderately enlarged, one of the largest in the kidney pole of the

Fig. 9. Case 1. Photomicrograph ($\times 100$) of the dilated fourth ventricle.

The brain was large, there were large ventricles, the meninges were thickened, the contents of the ventricles were normal.

CASE 2

Clinical History

J.D., European male, aged 25 years. This man was born with a large head and shortening of the left arm and leg. Despite this he had led a normal life and worked until November 1959, when, following a mild head injury, he awoke with severe headache. He vomited and was delirious. He was admitted to hospital. A lumbar puncture showed normal fluid. He was referred to a neurologist because the headache and vomiting had persisted. He had bilateral early papilloedema, but no other abnormal neurological signs. An air encephalogram showed large ventricles.

On 24 December 1959 a posterior fossa exploration showed a large fourth ventricle cyst containing yellowish fluid. The arachnoid over the posterior surface of the ventricle was excised and a ventriculo-cisternostomy performed.

Microscopically the cyst walls showed irregular bands of collagenous tissue with gliosis, not suggesting a parasitic cyst. Excellent recovery occurred, but on 25 January 1960 he complained of pain in his elbows and inability to feed himself. Examination was negative; his cerebrospinal fluid was normal.

He was kept under observation and became progressively weaker, developing inability to swallow and to cough. It was then found that he had a right foot drop and soon afterwards all reflexes disappeared.

On 5 February 1960 ventriculostomy and drainage was instituted. The cerebrospinal fluid contained 60 mg. per 100 ml. of protein and 18 lymphocytes. His condition deteriorated further, he developed an intercostal paralysis and died on 16 February 1960.

Postmortem Findings

This confirmed the uniformly enlarged head, especially the vault, and the other external features. The lungs were moderately oedematous and had two focal areas of haemorrhage, one well-circumscribed and the other of more recent origin. The liver had focal fatty change, most marked in the left lobe. There was persistence of the foetal lobular pattern in the kidneys and an aberrant renal artery entered the upper pole of the right kidney.

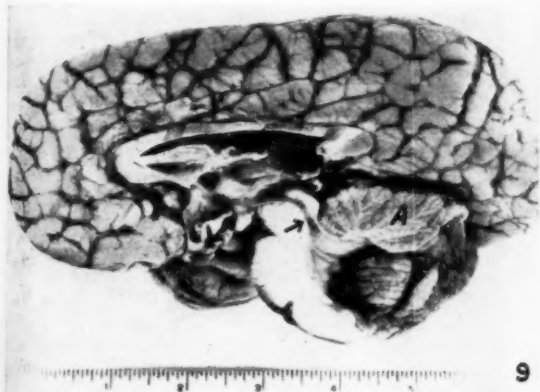


Fig. 9. Case 2. Sagittal section of the brain. Note the generalized hydrocephalus with dilatation of the aqueduct (arrow) and upward displacement of the malformed vermis (A) by the dilated fourth ventricle.

The bones forming the cranial cavity were normal. The meninges were normal except at the operative sites where there were scanty adhesions and some thickening. The brain was large and showed features of a moderately severe hydrocephalus. In particular the floor of the third ventricle was paper-thin and had ruptured during removal of the cranial contents. The fourth ventricle showed enormous cystic dilatation with a roof composed of membrane only. The posterior portion of the vermis was absent and the cerebellar

hemispheres were displaced laterally. The features were identical with those of case 1 and will not be repeated in detail (sagittal section—see Fig. 9).

Histological Examination

The histology of the membrane showed the same structure as in case 1. There was a moderate amount of glial tissue in the intermediate layer but no medullated fibres were present. The membrane was oedematous and infiltrated by a scanty acute inflammatory exudate, compatible with a postoperative origin. Sections of the cerebellum were normal.

CASE 3

Clinical History

H.V., European female, aged 7 months. The child was born normally. At the age of 2 months the mother suspected that the child's head was abnormally large. The patient began vomiting and would not hold up her head from 1 week before admission on 24 August 1959.

On examination she appeared hydrocephalic with less frontal bossing and more occipital prominence than usual. The head circumference was 49.6 cm. and the anterior fontanelle was widely open and tense. There were no abnormal neurological signs and the other systems appeared normal on examination.

On 27 August 1959 percutaneous punctures showed lateral ventricles 1.5 cm. from the skin. Twenty-five c.c. of air were injected into each lateral ventricle. On X-ray a symmetrical dilatation of the lateral ventricles with filling of a large posterior fossa 'cyst' extending beyond the usual position of the internal occipital protuberance was shown (Fig. 10).



Fig. 10. Case 3. Ventriculogram: lateral views showing the enormous dilatation of the fourth ventricle.

On 4 September 1959 a suboccipital craniectomy was performed. On opening the dura a large cyst was seen. This was the dilated fourth ventricle. At its rostral end, the aqueduct of Sylvius with a diameter of 1 cm. was observed. Rudimentary cerebellar hemispheres, but no cerebellar vermis, were present. On stripping the cyst wall bleeding occurred from misplaced choroid plexus in the right inferior angle. The dura was left open and the wound was closed.

Postoperatively the child made repetitive jerking movements of the left hand and leg. The rectal temperature rose intermittently to 105°F. during the first and third postoperative days. Apart from this and initial vomiting after feeds, the course was uneventful. The patient was discharged on 19 September 1959 on the 18th postoperative day.

On 23 September 1959 her fontanelle was slack and she held up her head better than previously, but the head circumference remained unchanged. She was taking her feeds satisfactorily.

Five months later the patient became ill, vomited frequently, lapsed into coma, and died. Autopsy done elsewhere showed

gross hydrocephalus and confirmed the operative findings. No results of histological examination are available.

DISCUSSION

John Hilton³ in 1863 in his *Lectures on Rest and Pain* described a case of obstruction at the foramen of Magendie. According to Gibson,⁸ the first authentic case was reported by Dandy and Blackfan⁵ in 1914. Dandy⁴ in 1921 described the operative treatment of the condition. He considered that the condition was due to lack of development of the foramina. This view was held by Taggart and Walker,¹¹ and histological confirmation of the congenital origin was obtained in 2 of their 3 cases, as Dorothy Russell¹² has pointed out.

Benda¹ proposed the term 'Dandy-Walker syndrome' for the condition, which he considered was a developmental anomaly of the area of the fourth ventricle belonging to the category of cleft formation or rachischisis. He thought that although atresia of the foramen of Magendie may be present it is not the essential feature of the syndrome. However, Gibson⁸ presented 2 cases, and maintained that atresia of the foramen of Magendie leads to hydrocephalus in later foetal life and is the crucial maldevelopment in the condition. Both these theories have been disputed by Brodal and Hauglie-Hanssen² who have used comparative anatomical methods to show that some factor responsible for the development of the hydrocephalus acts before the foramina of Magendie and Luschka have developed. They maintain that since the vermis of the cerebellum is normally completely developed before the foramina are formed, the causative factor must precede foraminal obstruction in the condition where agenesis of the vermis is invariable. From embryological studies it has been found that the foramen of Magendie commences to form at about the 3½-month stage of foetal development (100 mm. crown-rump length). An evagination of the tela choroidea into the pia-arachnoid forms a diverticulum which subsequently atrophies resulting in a patent foramen between the fourth and fifth months. The development of the foramina of Luschka appear to parallel that of the foramen of Magendie. Hochstetter (1929) (quoted by Brodal and Hauglie-Hanssen²) estimated that they appear at a foetal stage of 129 mm. crown-rump length. This author, during the same study, set the date of fusion of the cerebellar hemisphere anlage at a stage of 40-45 mm.

The crucial point in the pathogenesis is whether the primary defect is that of atresia of the foramina with subsequent dilatation of the ventricles (a pure mechanical effect), or whether factors operating during foetal life delay or prevent cerebellar development and also interfere with opening of the foramina.

There are reports of at least 1 patent foramen in examples of this condition.^{2,8} On the other hand, otherwise normal brains have been described in which the foramen of Magendie or one or both foramina of Luschka were lacking (Alexander, quoted by Brodal and Hauglie-Hanssen²). Furthermore, in accepted cases of the Dandy-Walker syndrome, the ventricular system has filled by pneumoencephalography via the lumbar route and dyes have passed through the ventricles into the sub-arachnoid space so that one cannot but suppose that at least 1 foramen has been patent. Matson,¹¹ and Taggart and Walker,¹¹ however, found that on occasions dye, but

not air, passed through the membrane. They attributed this to dialysis rather than direct communication.

Gardner *et al.*^{6,7} claim that failure of outlets of the fourth ventricle to develop in the rhombic roof of the embryo is the cause of the Dandy-Walker syndrome, the Arnold-Chiari malformation, syringomyelia and certain 'arachnoid cysts' of the cerebellum. If this seems to be rather an extravagant theory, so too seems Brodal and Hauglie-Hanssen's theory that the cerebellar malformation of the Dandy-Walker syndrome and the foraminal atresia are due to some unknown factor causing hydrocephalus before the cerebellum has developed fully. The latter theory could be invoked where the cerebellar development is least advanced; it fits in with embryological studies showing that cerebellar development is complete before the foramina open. However, histologically verified remnants of cerebellar tissue in the roof membrane of the dilated fourth ventricle show changes suggesting that the malformation of the cerebellum is due to secondary hypoplasia.⁸ We agree with Gibson that atresia of the foramina is the primary cause of the Dandy-Walker syndrome.

Brodal and Hauglie-Hanssen were able to record 30 human cases to which they added 2 of their own. In spite of the relatively few cases reported, there is evidence that the condition is not as rare as this suggests. Laurence¹⁰ reported autopsy findings on 100 cases of hydrocephalus of which 7 were examples of obstruction at the outlet foramina of the fourth ventricle, 12 were cases of Arnold-Chiari malformation, and 48 showed multiple sites of obstruction. Benda¹ found 6 cases of Dandy-Walker syndrome in his last 13 autopsies on hydrocephalic children, 3 of which had Arnold-Chiari malformations. It would seem therefore that the Dandy-Walker syndrome is nearly as common as the Arnold-Chiari malformation.

The brain lesions in our 3 cases do not differ in any detail from the condition under discussion. From the descriptions in the literature, and our own experience, the malformation is fairly uniform in all cases and the morbid anatomical features are unlikely to be confused with those of any other condition. The degree to which the cerebellum is affected varies from case to case. The vermis is always reduced in size and sometimes absent.

Histological examination of the membrane bridging the cerebellar hemispheres has yielded interesting information. The layer between the ependyma and the arachnoid has received particular attention. This space contains predominantly connective tissue, varying from the loose type to dense collagenous fibres. Islands or plates of glial tissue have often been described and, in addition, nerve fibres have been seen. Glial tissue may be separated from the lateral cerebellar hemispheres by 2-3 cm., or fibres may form a thin layer reflected from the line of attachment of the membrane passing on the medial surface of the hemispheres to enter their white matter (Gibson;⁸ case 1). These plaques of white matter may be identified in the membrane macroscopically. Traced by serial section, glial fibres are found to be continuous with the rostral attenuated end of the vermis and its nodulus. These observations afford presumptive evidence that the nature of the defective cerebellar structure is secondary rather than primary aplasia.

Clinically symptoms of atresia of the foramen of Magendie are onset of symptoms in process, in closure, as with some inflammation ever, the infant 2 autopsy or mild position.

The clinical picture are ill occipital enlargement internal hydrocephalus the lack of even when of raised intracranial pressure.

X-rays of the skull and thinning of the torcula, the greater separation seen.¹¹

Ventricular dilatation under the large fourth ventricle noted projection of second cerebellar hemisphere. He advised occipital skull found the Plantes¹⁵ obstruction.

Once it rapidly passes into the first case, the diagnosis.

Pneumoencephalography may be performed are sufficient.

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Clinically the fact that some patients have no signs or symptoms for years (Cases 1 and 2) suggests partial patency of the foramina. We have evidence of ventricular filling by pneumo-encephalography in 2 cases. The late onset of symptoms may be related to some inflammatory process, infective or traumatic, causing complete foraminal closure, as suggested by Laurence,¹⁰ in whose 46 cases with some congenital lesion 32 showed evidence of inflammation of either traumatic or infective origin. However, the inflammatory cellular infiltration observed in our 2 autopsy cases could be ascribed to operative trauma or mild postoperative infection.

The clinical features with both early and late presentation are illustrated in our cases. The third case showed occipital enlargement of the head typical in this form of internal hydrocephalus in infants. The first case illustrated the lack of cerebellar signs characteristic in older patients even when the hydrocephalus is causing severe symptoms of raised intracranial pressure.

X-rays of the skull may be diagnostic when the bulging and thinning of the occipital part of the skull, the high torcula, the obliquity of the transverse sinus, and the greater separation of the lambdoid than other sutures, are seen.¹¹

Ventriculography¹² will show air in the posterior fossa under the characteristically high tentorium cerebelli, the large fourth ventricle, huge aqueduct, and symmetrical dilatation of the lateral and third ventricles. Matson¹¹ noted projection of the cisterna magna to the level of the second cervical laminae and Fig. 6 demonstrates this. He advised views with the brow slightly up or with the occiput slightly up to show these features. We have found the 'backward somersault' used by Ziedses des Plantes¹⁵ most useful in the elucidation of the site of obstruction.

Once it is appreciated that in this condition myodil rapidly passes through the dilated aqueduct of Sylvius into the large fourth ventricle, as demonstrated in our first case, myodil ventriculography can be used to clinch the diagnosis.

Pneumo-encephalographic demonstration of the lesion may be possible if the foramina of Magendie and Luschka are sufficiently patent, as we have shown.

The characteristic high torcula may be demonstrated by dural sinography as Matson¹¹ has shown.

Treatment of the condition should be operative. Satisfactory results with unroofing of the enormously dilated fourth ventricle have been described. Matson,¹¹ who gives

the largest single series, notes 8 cases of which 3 did well with nothing more than wide excision of the cyst wall; 4 required additional shunting procedures, and 1 died 2 months after operation. At operation the caudal and lateral parts of the membrane must be removed, the abnormal situation of the choroid plexus in this region should be remembered to prevent haemorrhage. Ventriculo-atrionostomy should be preferred when the patient's condition does not warrant the more extensive operation for removal of the membrane or when the latter is followed by recurrence of symptoms.

We believe that further investigations of hydrocephalus will reveal a much higher incidence of this condition.

SUMMARY

Three cases of Dandy-Walker syndrome are presented. A review of the literature with a critical account of the theories of origin is given. It is concluded that maldevelopment of the foramina of Luschka and Magendie is the crucial pathogenic lesion. The pathological, clinical, diagnostic, and therapeutic aspects are discussed. An assessment of the incidence of this cause of hydrocephalus is given.

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We also wish to thank the Superintendents of Groote Schuur Hospital, Cape Town, and Red Cross War Memorial Children's Hospital, Rondebosch, Cape, for access to case records.

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A CONTROLLED CLINICAL TRIAL OF 'PERSANTIN' (R A 8) IN ANGINA PECTORIS*

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'Persantin' (R A 8) is the trade name for 2,6-bis-diethanol-amino)-4,8 - dipiperidino - pyrimido - (5, 4 - d) pyrimidine.

It is a synthetic substance whose basic structure is a double ring consisting of 2 condensed pyrimidine rings.

* Based on a paper presented at the Second Scientific Meeting of the Association of Physicians of South Africa (M.A.S.A.), Johannesburg, July 1960.

The compound has been reported to increase coronary blood flow in dogs and to be twice as potent in this respect as papaverine.¹⁻⁴

The drug was tried clinically in ischaemic heart disease, and several reports from Germany mentioned 'good results' in 50-75% of cases.⁵⁻⁷

We have conducted a controlled clinical trial of

persantin** in 15 patients with chronic angina pectoris seen in private practice in Johannesburg.

CLINICAL TRIAL

Methods

The investigation was conducted as a 'double-blind' trial. The patients received persantin and placebo tablets (of identical appearance and taste) for periods of 2 weeks alternately, and it was hoped that each patient would have at least 2 periods on each form of tablet. The tablets were issued by the receptionist and the patients were not informed that a placebo was to be used. The first course was either placebo or persantin, and the authors were unaware which tablet the patient was receiving, until analysis at the end of the study.

Of the 15 patients entering the study, only 5 completed at least 2 courses of each tablet, while 9 others completed at least 1 course of each tablet. One patient failed to complete 1 course of each tablet and he has been excluded from the results.

The patients were given forms on which they were asked to document, each day, the number of anginal attacks they experienced, the number of trinitrin tablets used, and their general remarks on the efficacy of the drug.

Patients were considered improved if there was a noticeable reduction both in the average number of anginal attacks and the average consumption of trinitrin, while those in whom angina became no longer evident were considered to be markedly improved.

The patients received 12.5 mg. of persantin 3 times daily.

Material

There were 10 males and 5 females. Their ages ranged from 50 to 77 years, with an average of 59. Eleven patients had had previous myocardial infarctions (2 infarctions in each of 2 patients), while of the remaining 4 patients, 3 showed ischaemic changes on the electrocardiogram taken after effort and, in 1, the resting electrocardiogram revealed ischaemia. All the patients experienced frequent angina of effort, and all had been accustomed to use trinitrin for the relief of pain. In no case had there been any significant variation in the severity of the angina over the preceding few months.

Results

Of the 5 patients who completed 2 courses of both persantin and placebo, 3 experienced no change in their angina during any period of therapy. Two patients were improved on both persantin and placebo, 1 of the 2 being markedly improved (Table I). It is of interest that this

TABLE I. RESULTS IN 5 PATIENTS WHO COMPLETED AT LEAST 2 COURSES EACH OF PERSANTIN AND PLACEBO

Result	Patients
No change	3
Improved on persantin and placebo	2 (1 slight) (1 marked)
Improved on persantin alone	0
Improved on placebo alone	0
Total	5

** Supplied by C. H. Boehringer Sohn, through Pfizer Laboratories South Africa (Pty.) Ltd.

patient has now taken 4 courses of each tablet, and his improvement is maintained.

Of the 14 patients who completed at least 1 course of persantin and 1 course of placebo, 7 experienced no change in their angina during therapy. Three patients were improved on both forms of medication (1 patient markedly improved). Two patients improved on persantin but not on placebo (1 markedly improved), while 2 patients improved on placebo, but not on persantin (Table II).

TABLE II. RESULTS IN 14 PATIENTS WHO COMPLETED AT LEAST 1 COURSE EACH OF PERSANTIN AND PLACEBO

Result	Patients
No change	7
Improved on persantin and placebo	3 (1 marked)
Improved on persantin	2 (1 marked)
Improved on placebo	2
Total	14

Side-effects

Nausea was reported by 1 patient while on persantin, but this did not reappear with the second course of persantin. No other side-effects were noted.

DISCUSSION

It is well known that the severity of angina varies considerably from time to time in an individual patient.

Placebo reactors among anginal subjects are not uncommon and many reports of one or another medication being efficacious do not allow for 'spontaneous' variation or placebo response. We have not been able to trace a previously reported controlled clinical trial of persantin, and we embarked on the present trial as a pilot study.

The results in this small group have shown no significant difference between persantin and the placebo used. It is conceded that a trial in a considerably larger number of patients may reveal differences between persantin and placebo, but it is felt that if the differences were to be really significant, some pattern would already have shown itself in our 14 patients. It is further conceded that larger doses may have shown an effect. However, in view of the negative results in our series, and the difficulties of conducting a controlled trial in private practice, we did not feel justified in continuing the trial further. Two patients who failed to respond were subsequently given 25 mg. of persantin 3 times daily, but again there was no improvement.

When we embarked on this study it was hoped that each patient would receive at least 2 courses each of persantin and placebo, so that we could determine if any effect shown was reproducible. As mentioned previously, only 5 patients (33%) completed the full trial. Of the 10 patients who stopped the trial before the full period, 4 discontinued the tablets because they felt they were not helping; 1 patient 'noticed a difference' when changed from persantin to placebo, and was therefore given persantin again for continuous therapy. The remaining 5 patients did not complete the trial or return to report their reasons for stopping.

We believe that patients who would accept a full trial at hospital are rather more suspicious of such a trial conducted in private practice and that the high

incidence of these symptoms controlled the trial for greater As a result, embark on again and private practice

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incidence of failure to complete the trial may be a result of these suspicions. We have had past experience of controlled therapeutic trials in hospital practice,⁸ where far greater cooperation from the patients was obtained. As a result of our experience in this study, we shall not embark on a controlled clinical trial in private practice again and would not recommend such a trial to other private practitioners.

SUMMARY

A new vasodilator (persantin) was administered to 15 patients with angina pectoris. Placebo control periods were used and the trial was conducted as a 'double-blind' study. In the dosage used (12.5 mg. *t.i.d.*), no difference was

found between the effects of persantin and placebo.

The difficulties of conducting such a trial in private practice are mentioned.

We thank Messrs. Pfizer Laboratories South Africa (Pty.) Ltd. for generous supplies of persantin and the placebo, and for their interest in this study.

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MODERN THERAPY IN DEPRESSION

The rapid development in psychiatry, especially in the field of drug treatment, has given rise to numerous problems and questions. In order to provide an opportunity for the discussion of various facets of the complex problem of treatment in depressive conditions, three symposia were held recently. The first symposium was held in Cape Town on 9 August 1960 under the auspices of the Department of Medicine of the University of Cape Town; the second was held in Johannesburg on 26 August 1960, under the auspices of the Department of Psychiatry and Mental Hygiene of the University of the Witwatersrand; and the third was held in Durban on 4 October 1960, under the patronage of the Faculty of Neurology and Psychiatry of the College of Physicians, Surgeons and Gynaecologists of South Africa.

CAPE TOWN SYMPOSIUM

A film entitled 'Faces of depression' showing a cross-section of depressive cases was projected, after which Prof. J. F. Brock, of Cape Town, opened as first speaker of the evening. He stated that depression was a problem of everyday practice. Every general practitioner and specialist had to be prepared to recognize and differentiate a depression from other conditions. The main purpose of this symposium was to stress the universality of serious depression, its frequency, and its appearance in every field of medicine. The present generation of medical students has a better opportunity of studying this field, although teaching is still inadequate, and Professor Brock expressed the hope that the symposium would contribute towards bringing this problem into its proper perspective.

Dr. H. A. Walton, of Cape Town, discussed the psychiatric aspects of depression and outlined briefly the history of mental illness. He pointed out that not every depressive patient had clear target-symptoms, and to miss a depression was probably the most common mistake made in medicine today—a mistake which very often led to suicide or attempted suicide by the depressive patient. The physician, therefore, could not fail to be interested in this problem.

Dr. Walton discussed reactive depression, where definite precipitating factors are present, and endogenous depression (a major form of depression) in which hereditary factors are predominant.

Statistical information given by Dr. Walton disclosed that of every 100 persons hospitalized, 50 spent less than 4 months continuously on therapy. Out of 100, 9 were hospitalized continuously for 4½ years. The average expected stay in hospital was just under 1 year. However, Larsen, of Sweden, estimated that only 14% of all the patients suffering from manic depressive psychosis were hospitalized.

After discussing the possible causes of endogenous depression—mentioning evidence of organic and hereditary factors—Dr. Walton concluded by describing the complex range and form of diagnoses made in the depressions which finally rested with the patient's description of his mood and feelings.

Dr. S. Wolff, of Cape Town, spoke on the psychotherapy of depression and pointed out that whatever the diagnosis and plan of medical treatment was—outpatient treatment, drug

treatment, or ECT—psychotherapy was essential in order to understand the emotional needs of the patient and the peculiarities of his response to other people.

With reference to Freud's paper 'Mourning and melancholia' Dr. Wolff explained that mourning and bereavement was the result of the loss of a loved object and the person could not be expected suddenly to adjust himself to this loss. His thoughts tend to dwell on the lost person, but in time he would make new relationships and readjust himself. The depressed case, however, is a pathological case and the patient cannot make an adjustment on his own. It is here that the psychotherapist makes a valuable contribution. The patient considers the doctor to be very important and a person with whom he can discuss his problems. As the doctor is seen in a very special light he must be aware of the patient's feelings, his needs, and his frustrations. Modification on the part of the doctor is necessary in order that he may, irrespective of the various aetiologies and treatments, enable the patient to go out into the world free from his emotions and frustrations.

Dr. J. M. MacGregor, of Cape Town, discussed the physical methods of treatment and mentioned that in 1949 Gordon collected 50 theories of the mechanism of electroconvulsive therapy. Half of these were psychological and psychoanalytic theories, but from a physical point of view he described 6 possible mechanisms of electroconvulsive therapy, namely:

1. Structural. Changes may occur in diseased cells of the brain, but not much is known in this connection.
2. Endocrinal. Steroid formation is increased.
3. Anoxia. The addition of oxygen gives a better response.
4. Autonomic factors. There is not much to support this.
5. Histamine reactions within the brain.
6. Changes in the permeability of membranes. This seems to be the most attractive theory.

Dr. MacGregor discussed biochemical changes and electroencephalographic changes which resulted from the use of various psychotropic drugs and electroconvulsive therapy. Firstly, 2 groups of psychotropic drugs were tested in combination with ECT. The first group accelerated the EEG and increased the voltage and frequencies of waves. This group contained some of the MAO inhibitors and 'ritalin'. The second group depressed the voltage but produced large slow waves. This group contained among others 'tofranil'. 'Tofranil' seems to have a blocking effect on the reticular activating system. It would also seem that many of the psychotropic drugs have an anticholinergic action.

The chairman of the 3 symposia, Prof. L. A. Hurst, of Johannesburg, then spoke about drug treatment. He restricted his lecture to the potent modern antidepressant drugs, notably imipramine or 'tofranil' and the mono-amine-oxidase inhibitors. He differentiated between the chemical compositions and actions of the various psychotropic drugs and then gave an account of pathological studies undertaken in Switzerland and England on imipramine.

He quoted statistics from workers in this country (Drs. M. M. R. Clarke and G. M. Garrett) and from overseas, from which it appears that the success rate in the treatment of endogenous depressions with 'tofranil' lies between 70-75% and in reactive depression approximately 10% lower.

Professor Hurst went on saying that clinical trials were also in progress to compare 'tofranil' with the MAO inhibitors and a nation-wide comparison is planned by the Medical Research Council of Britain. This points to the fact that the effectiveness of these agents is recognized.

Professor Hurst said that it was obvious that 'tofranil' and the MAO inhibitors would not replace ECT. There is a school of thought, however, which maintains that the actual number of treatments can be reduced by the combination of ECT with 'tofranil' or the MAO inhibitors. He stressed the point that in severe depressions with suicidal danger the application of ECT should not be delayed.

In conclusion, Professor Hurst mentioned the possibility of interesting research on the mode of action of these new antidepressant drugs and biochemical genetics.

JOHANNESBURG SYMPOSIUM

Prof. G. A. Elliott, of Johannesburg, was the first speaker of the evening. He discussed the general aspects of mental hygiene. Referring to the film 'Faces of depression', in which patients are shown who had had 3 or 4 surgical operations before the depression was diagnosed, he pointed out how important it was that the physician should always be on the lookout for such conditions. Hypochondriasis may be the first if not the only manifestation of a serious impending depression. Professor Elliott pointed out that it is not enough to know that a patient has no organic disease. This is the least important part of the diagnosis. The physician should make a positive diagnosis of the psychiatric state. The personality of the patient should be studied to find out what his psychiatric moods have been in the past.

On the other hand, it is equally important that the physician should realize that physical illness, whether it be an infection, diabetes, metabolic disorder, etc. can present with mental symptoms.

In conclusion Professor Elliott pointed out once more that it must be remembered that in every person who comes for consultation there are both physical and mental symptoms.

Dr. T. E. Lynch, of Johannesburg, mentioned the well-established landmarks in clinical psychiatry, namely dementia praecox or schizophrenia and manic depressive psychosis. Dr. Lynch then proceeded to discuss the depressive phase of the manic depressive psychosis. After describing the main forms of depression, he described the danger of depression disguised by somatic symptoms. Very often the physician, the ophthalmologist, the gynaecologist, and the surgeon see these patients in the first place. Unless specific inquiries are made, the depression passes undetected, and Dr. Lynch stressed the importance of being on the lookout for the ever-present risk of suicide.

Dr. Lynch then referred to the so-called involuntional melancholia which illustrates other features which may be associated with depression: Marked agitation, restlessness, and anxiety over trifles; often these symptoms were combined with obsessive compulsive features and hypochondriacal complaints. Delusions of degeneration and destruction (e.g. that their brains have melted) may also be prominent.

People subjected to very severe life situations may develop such intense feelings that they must be regarded as ill—the so-called reactive depression. Dr. Lynch believes that people who develop this type of depression have a propensity for developing mental illness. There is therefore always an endogenous element in the production of a reactive depression. In conclusion Dr. Lynch referred to psychotherapy which plays a relatively minor, but nevertheless important, part in treating depression. The patients should be encouraged and given hope. Attempts to probe into the personal life and the personal details of the patient's environment should be avoided, since these may only intensify the depression. Firm and confident attitudes should be conveyed to the patient, indicating that he can be helped. This is thoroughly justified in view of the very effective treatments which we now have at our disposal.

Dr. M. B. Feldman, of Johannesburg, discussed the physical

methods of treatment of depression. After describing the characteristics of the various forms of depression, Dr. Feldman discussed the electroconvulsive therapy. With modern intravenous anaesthesia, given together with an intravenous muscular relaxant, ECT is safe, rapidly effective, and psychologically well tolerated. The death rate per treatment in a recent British series of a quarter of a million treatments has been calculated to be .003%. Another point which must be recorded in favour of ECT is that in the majority of cases some improvement is immediately shown and appreciable improvement is evident after the third or fourth treatment, that is to say within a week of commencing treatment. This must be contrasted with the period of time (2-6 weeks) which it usually takes for anti-melancholic drugs to become effective. Furthermore, Dr. Feldman said that all these drugs were liable to cause various side-effects: some uncomfortable, some dangerous.

Before the unfortunate melancholic patient can achieve the treatment which would help him, he has several hurdles to surmount, e.g. the stigma associated with mental illness, difficulties arising from his illness, and social prejudice. Dr. Feldman then stressed the importance of immediately recognizing a depression. When the physician, having failed to have found evidence of organic disease, uses such phrases to the melancholic as 'there is nothing wrong with you' or 'pull yourself together', the evidence of the absence of understanding of the patient on the part of the medical attendant may result in the patient abandoning hope of help from doctors and thus fortifying his resolution to end his life.

The chairman of the symposium, Prof. L. A. Hurst, then repeated the remarks he made on drug treatment in Cape Town.

Dr. D. du Plessis, of Pretoria, opened the discussion from the floor by saying that he could not agree with Dr. Feldman's attitude in practically rejecting the chemotherapeutic approach to depression and advocating in all cases shock treatment. In his experience shock treatment can be very much reduced by the additional use of chemotherapeutic agents. He asked Dr. Feldman whether he had ever seen cases that had not responded to electroshock treatment, but which have responded remarkably to the MAO inhibitors or 'tofranil'. He said that he remembered 2 cases who had been treated with electroshock with no result, but responded dramatically, one to 'tofranil' and the other to 'marsilid'.

He agreed, however, that in an urgent case where suicide is a possibility and where an acute and deep depression is present, electroshock treatment should be instituted immediately. On the other hand, chemotherapeutic treatment is indicated for the patient who can still carry on with his work and who cannot be forced to go to a nursing home.

Dr. du Plessis also stated that he did not agree with Dr. Feldman that it usually took 6 weeks for the effect of chemotherapeutic agents to become noticeable. It has been reported, and he personally had had cases, where the improvement had set in between the fourth and seventh day. On an average the improvement sets in after about 14 days.

Dr. du Plessis felt that side-effects are of little importance because, after treatment, the patient feels so much better that he can bear the side-effects without any discomfort. As regards the question of the dangerous side-effects mentioned by Dr. Feldman, Dr. du Plessis said that apart from the original 'marsilid' he did not think that any cases of serious and dangerous side-effects have been reported. In concluding Dr. du Plessis pointed out that in his opinion ECT is no longer essential in every case, but it still has a place in the treatment of very serious cases.

In replying Dr. Feldman agreed with Dr. du Plessis and said that he also knew of cases which failed to respond to ECT but which improved after drug treatment. However, he thought that the fact that they responded to one or another drug may not necessarily be significant, because depression is an illness which tends to remit spontaneously.

He also found it difficult to decide, without adequate reports of control studies, whether the use of these various drugs together with the ECT reduced the number of ECTs required. In the individual patient one attack may last a long time and a subsequent attack a short time with or without treatment of any sort.

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Dr. Feldman concluded in saying that he tried to point out that the new drugs should not be used indiscriminately. After several further contributions towards the discussion from the floor the chairman, Prof. L. A. Hurst, closed the symposium.

DURBAN SYMPOSIUM

Prof G. A. Elliott discussed the general aspects of mental hygiene as he had done in Johannesburg.

Dr. B. Crowhurst Archer, of Durban, spoke on psychiatric aspects of depression and psychotherapy. He said that the term 'depression' may refer to either a symptom, or a syndrome or disease entity. He said that there were different common varieties of endogenous depression, i.e. manic depressive states, involutional depression, and senile depression.

While speaking about the suicidal danger, Dr. Crowhurst Archer said that it was commonly believed that those who talk about suicide never carry out their threat. In practice, however, it is found that one third of those patients make an attempt to kill themselves. Half-hearted suicidal attempts are often disregarded as being hysterical. These patients are, however, suffering from retardation and as soon as their condition improves they tend to employ more effective and successful methods.

Dr. Crowhurst Archer stated that he agreed with the school of thought which believes that despite physical methods of treatment it is still necessary to distinguish between psychogenic, induced, reactive depression and the more endogenous type of illness; the former sometimes responds to psychotherapy, the latter very rarely.

The speaker stressed the importance of deciding, during the first interview, whether the patient could be treated as an out-patient or whether he should be hospitalized. Treatment as outpatients is most desirable in order not to disturb the occupational or other interests of the patient. In other countries there are the advantages of day and night hospitals. These amenities have unfortunately not yet been provided in this country.

Hospital treatment, however, may be necessary for the protection of the patient (suicidal danger) or the protection of other people, or in order to carry out special treatment (cortisone, narcosis, ECT, etc.).

Speaking about the physical methods of treatment Dr. R. W. S. Cheetham, of Durban, gave a brief summary of the historical data which led to ECT.

Modern electroplexy (Dr. Cheetham stated that the use

of the word 'shock' was 'unpsychological') is quite different from the type of convulsive therapy used some years ago. With the application of muscle relaxants, light anaesthesia, and the application of the glissando technique, the reaction of the patient is mild, and 2 nurses can control the effects of the convulsion. Before relaxants were used it was relatively frequent to find that, during ECT, the patient developed fractures of the vertebrae, fracture-dislocations of the humerus, and possibly dislocations of the jaw. These complications do not occur with the modern type of treatment, so that the treatment in itself is relatively simple and remarkably free from risk.

The number of treatments varies from patient to patient. When the stage is reached where the patient shows an improvement of mood and is beginning to sleep well, to have an appetite, and to be active again, he has 'turned the corner'. After that he should receive about 2-3 treatments more. Some patients may need a second course of treatment after a couple of months or they will possibly need 1 treatment per month as a maintenance dose. However, today, using the thymoleptic drugs such as 'tofranil' in conjunction with ECT, it is found that the relapse rate is very much lower than it was before, and the need to repeat the treatment is lessened.

Speaking about contra-indications and side-effects of ECT Dr. Cheetham said that there was no reason to suppose that definite brain damage occurs. Reversible changes may happen, probably at the enzyme level, but no real known definite organic brain changes have been reported. Cardiac failure, myocardial infarction of recent origin, extreme degrees of hypotension, and cerebral haemorrhage are, however, definite contra-indications to ECT. It used to be thought that pulmonary tuberculosis was a contra-indication, but this has been disproved.

Dr. Cheetham felt that ECT should preferably be carried out in a hospital or clinic, since the results with ECT in out-patient departments are not satisfactory. He further stressed the point that ECT is a specific treatment; it should not be regarded as a treatment just given at the end because there is nothing more to do. It must be given at the right time and to the right person and in the right place.

Dr. Cheetham then briefly discussed modified insulin treatment, continued narcosis, and deep sleep or hibernation treatment.

In conclusion, Dr. Cheetham expressed the opinion that ultimately ECT would be replaced by chemotherapy and psychotherapy, but at present a combination of ECT and chemotherapy seemed the most effective therapy for depression.

SHORT-TERM APPOINTMENTS FOR BRITISH GRADUATES AT SOUTH AFRICAN HOSPITALS*

DR. R. SCHAFFER, *Past-President, Medical Association of South Africa*

It is essential that the close ties which have always existed between British and South African medicine should be maintained, and that the opportunities given to South African graduates to obtain clinical experience and postgraduate training in British institutions should be safeguarded. There are, at any one time, more than 2,000 Commonwealth medical graduates working in British hospitals or attending courses of study at British postgraduate institutions, and many of these are South Africans who return to this country after they have availed themselves of the opportunities for professional advancement given to them in the United Kingdom.

The Medical Association of South Africa has reason to be grateful to the British Medical Association for assisting our graduates in the United Kingdom by placing the services of the Commonwealth Medical Advisory Bureau at their disposal. We also have reason to be grateful to Sir Francis Fraser, the Director of the British Postgraduate Medical Federation and his officials. As the British Medical Association is assisting our graduates it is right that we should assist the BMA whenever this is possible.

South African medicine owes a great deal to British

*Memorandum presented to a Meeting of the Federal Council of the Medical Association, held on 19-21 October 1960, by Dr. R. Schaffer, the Association's representative at the British Commonwealth Medical Conference held in London on 11-14 July 1959.

medicine and it is hoped that the cordial relationship which has always existed between the BMA and the M.A.S.A. will long be maintained; but long-term cordial relationships are impossible when the one partner always gives and the other partner only takes. We must therefore welcome an opportunity to assist the BMA. As South African doctors are given the opportunity of gaining experience in British hospitals, it is right that British qualified doctors should also have opportunities of working in South African hospitals. They will not only gain varied and valuable clinical experience, but will also learn something about our problems and our way of life. They will return to Britain, should they decide not to settle in South Africa, with a better understanding of the vast potentialities of this country and a more kindly understanding of our temporary difficulties.

In the days of the now vanishing Colonial Empire, many members of the British Medical Association went overseas. Some went as members of the Indian and Colonial Medical Services, some as medical administrators, medical teachers and medical missionaries, and some became private medical practitioners.

The 'wind of change' is not an entirely new wind and has been blowing for many years, substituting nationalism with a desire for self-sufficiency, for Colonial rule. Many oppor-

tunities for overseas employment have thus been blown away, and the security previously offered by overseas employment no longer exists.

This change has presented British medicine with a serious problem, a problem which was discussed by the British Commonwealth Medical Conference.

The British National Health Service provides employment and security for the majority of British doctors, but has failed to make satisfactory provision for the young man or woman who has served an apprenticeship as a hospital registrar, who has obtained the necessary additional academic qualifications, but who can not immediately be fitted into a junior consultant post at a British hospital.

The senior registrar for whom no hospital post is immediately available must get out. Others must also be given the opportunity of training and the junior registrar must become the senior registrar. What is this man or woman to do? He can leave the country if he can find suitable overseas employment, or he will be forced into general practice, which can be most frustrating and demoralizing for the highly qualified practitioner under National Health Service conditions. It has been suggested by the BMA that these young graduates be given proleptic appointments by the National Health Service. They would then be appointed not when the vacancies occur, but several years before the vacancies are due to occur. A senior registrar would then be told in January 1961 that he had been appointed to a consultant post as from January 1963. In this way a group of 'consultants designate' would be created and they would be encouraged to accept service overseas for the period which would elapse before they assumed their posts in the National Health Service.

The success of such a scheme must depend entirely on the cooperation of other Commonwealth countries. Is South Africa able to assist the British Medical Association by providing temporary appointments for some of their men and women in South African hospitals? Can this assistance be

given without detriment to our own South African graduates?

I have informed the members of the Commonwealth Medical Conference:

1. That the Medical Association of South Africa will make its resources and services available to members of the BMA in exactly the same way as the services and assistance of the BMA are made available to members of the M.A.S.A.

2. That there are no vacancies at present and are not likely to be vacancies for British graduates in our teaching hospitals.

3. That there are numerous vacancies for full-time resident medical officers in our non-teaching Provincial hospitals, and that British graduates would be welcome to apply for these posts as advertised. The Conference was informed of the salaries paid and was also informed that ample opportunity for varied clinical experience was offered.

4. Positions as assistants or *locum tenentes* in private practice were usually available and advertised in the *South African Medical Journal*.

It is at present impossible to fill many of the medical posts in our smaller Provincial hospitals, and it will be in the interest of the Provincial hospital departments to make such posts available to British graduates. This will not be detrimental to the interests of South African graduates. I recommend that Federal Council agrees to this in principle.

I further recommend:

1. That Federal Council request the Provincial hospital departments to appoint British graduates, whose appointment is recommended by the British Medical Association, to 2-year appointments, and that assisted passages be given on the basis of a 2-year contract. (Present regulations require a 3-year contract.)

2. That the South African Medical and Dental Council be requested to grant temporary registration at a reduced fee to British graduates given short-term Provincial hospital appointments.

AMPTELIKE AANKONDIGING : OFFICIAL ANNOUNCEMENT

TARIEF VIR MEDIESE HULPVERENIGINGS

Op sy jongste Vergadering het die Federale Raad van die Vereniging besluit om die Tariefboek uit te gee waarin gelde volgens die desimale muntstelsel aangegee word. Die druk van die boek word nou onderneem en sodra dit gereed is, wat hopelik een of ander tyd gedurende Januarie 1961 sal wees, word eksemplare daarvan aan al die lede van die Vereniging gestuur.

L. M. Marchand
Medesekretaris

Plazagebou 28
Pretoria
23 Desember 1960

TARIFF OF FEES FOR MEDICAL AID SOCIETIES

The Federal Council of the Association agreed at its recent Meeting to issue the Tariff Book with the fees listed in the decimal monetary system. The printing of the book is in progress and as soon as it is ready, which will be some time during January 1961, copies thereof will be posted to all members of the Association.

L. M. Marchand
Associate Secretary

28 Plaza Buildings
Pretoria
23 December 1960

IN DIE VERBYGAAN : PASSING EVENTS

Dr. Hugh van der Post, formerly of Port Elizabeth, has just been awarded the M.Ch. (Orth.) of the Postgraduate School of Liverpool University. Dr. van der Post has also been awarded a Gold Medal for attaining a special standard.

South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 16 January at 5.10 p.m. in the Institute Lecture Theatre. Dr. C. Isaacson will speak on 'The pathogenesis of iron overload in the Bantu'.

South African Society of Medical Women (M.A.S.A.), Johannesburg Sub-Group. This Sub-Group is inaugurating a luncheon club, which will meet on the third Tuesday of every month at the Rand Women's Club, Anstey's Building, at 1 p.m. Guest speakers will address each meeting.

The first meeting will be held on Tuesday 17 January 1961 and all medical women are invited to attend. Those wishing to attend are asked to inform either Dr. J. Chouler (telephone 22-1453, office hours) or Dr. C. Freed (telephone 45-5111, evenings) at least 4 days before the meeting.

UNIVERSITEITSNUUS : UNIVERSITY NEWS

UNIVERSITY OF CAPE TOWN

The following postgraduate degrees were conferred at the Graduation ceremony held on 8 December 1960:

Doctor of Medicine

Bouchier, I. A. D.
Dubowitz, V.

Herman, J. B.
Wright, R.

Master of Medicine (Anaesthetics)

du Toit, H. J.

Hoffman, S.

Master of Medicine (Medicine)

Currey, H. L. F.

Master of Medicine (Radiodiagnosis)

Goldberg, S.
Kottler, R. E.

Krige, H.

Master of Medicine (Radiotherapy)

Anderson, J. D.

Prizes have been
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UNIVERSITY OF NATAL

Prizes have been awarded as follows to the 1960 graduands.
The formal announcement and presentation of these prizes will be made after the Principal's Opening Address to students on Monday, 27 February 1961.
Arthur Goldsmith Prize: Dr. D. B. de W. Matlhoko
Association of Surgeons of South Africa (M.A.S.A.): Dr. D. B. de W. Matlhoko
Burroughs-Wellcome Prize: Dr. D. B. de W. Matlhoko
Good Companions Award: Dr. C. A. Hlatshwayo
Horace Wells' Medal in Anaesthetics: Dr. D. B. de W. Matlhoko

Prize in Medicine: Dr. D. B. de W. Matlhoko
Prize in Paediatrics: Dr. L. P. Naidoo.

The following students passed the Final Examination for the Degrees of Bachelor of Medicine and Bachelor of Surgery:

Bruce, R. L.	Mtimkulu, P. M. S.
Chiliza, J. F. G.	Naidoo, L. P.
Chitiyo, M. E.	Nxumalo, E. Z. C.
Hlatshwayo, C. A. (Miss)	Pather, R. (Miss)
Luswazi, D. C.	Zwana, S. L. V.
Matlhoko, D. B. de W.	

UNIVERSITY OF THE WITWATERSRAND

The following postgraduate degrees and diplomata were conferred at the graduation ceremony held on 15 December 1960:

Diploma in Anaesthetics
de Villiers, A. P. (passed November 1960)
Gerber, M. C. (passed June 1960)

Diploma in Surgery
Simchowitz, M. Z. (passed June 1960)
van Blerk, P. J. P. (passed November 1960)

Diploma in Medicine
Dubb, A. (passed June 1960)
Law, I. (passed June 1960)

Diploma in Obstetrics and Gynaecology
Edelstein, T. (passed June 1960)
Williams, M. E. (passed June 1960)

Diploma in Psychological Medicine
Benjamin, B. (passed June 1960)
Daneel, A. B. (passed November 1960)
Fischer, P. J. (passed November 1960)
Irwin, C. (passed November 1960)

Diploma in Radiotherapy
Levin, J. (passed November 1960)

Diploma in Industrial Health
Freed, L. F. (passed November 1960)

Doctor of Medicine
Blignault, W. J.

NUWE PREPARATE EN TOESTELLE : NEW PREPARATIONS AND APPLIANCES

DIANABOL

Ciba (Pty.) Ltd. announce the introduction of Dianabol, an anabolic substance, and supply the following information:
Dianabol is a new-type steroid which, when administered orally or parenterally, exerts an intensive effect on protein metabolism. By promoting protein synthesis, Dianabol encourages the constructive metabolism of proteins. This leads to a positive nitrogen balance, to an increase in appetite and body-weight, and to an improvement in the patient's general condition. Dianabol also has a favourable effect on the calcium balance, causing increased deposition of calcium in the bones.

Indications

Dianabol is indicated in all diseases and conditions in which it is desired to achieve an anabolic effect, i.e. to promote the constructive metabolism of proteins, and to strengthen the entire organism by exerting a general tonic effect.

Dianabol is accordingly suitable for use in the following: Retarded convalescence following severe infections, operations and confinements; general physical deterioration or cachexia due to chronic infectious diseases, radiation therapy, or other causes; states of debility and exhaustion; underweight and emaciated patients; symptoms of senescence associated with decline in physical energy; pains in the back and lumbar region due to osteoporosis; osteoporosis, destructive bone diseases, delayed callus formation; negative nitrogen balance during corticosteroid therapy; renal diseases (e.g. nephrosis, renal insufficiency); and developmental and growth disorders in infants and children of all ages.

Administration and Dosage

For adults the average initial dose is 10-20 mg. Dianabol daily. For maintenance therapy 5-10 mg. daily is usually sufficient. The daily dosage is administered in 1-2 fractional doses.

Dosage for Children: Infants and children up to 2 years—1 drop (= approximately 0.04 mg.) per kg. body-weight daily. Children aged 2-5 years—0.5-1 mg. daily. Children 6-14 years—1-2 mg. daily.

The Dianabol drops may be given in milk, fruit juice, or tea. Administered in the recommended dosage, Dianabol

produces, as a rule, no side-effects. Children and adolescents should not be treated with Dianabol for periods of more than 4 weeks at a time, after which the treatment should be interrupted for 4-6 weeks.

Each tablet contains either 5 mg. or 1 mg. 17 α -methyl-17 β -hydroxy-androsta-1,4-diene-3-one. One c.c. of the drops contains 1 mg. Dianabol.

Supply

Dianabol is supplied in bottles of 20 and 100 5 mg.-tablets. For paediatric use bottles of 20 1 mg.-tablets are supplied and also bottles of 20 c.c. drops which contain 1 mg. per c.c. (= 30 drops).

Further information may be obtained from Ciba (Pty.) Ltd., P.O. Box 5383, Johannesburg. See also advertisement on page xxxi.

TONIAZOL

Newport Trading Corporation (Pty.) Ltd. announce the introduction of Toniazol, a liquid tonic, manufactured by Knoll A. G., and supply the following information:

Toniazol contains Cardiozol (R), caffeine and alcohol and has a highly beneficial effect on vegetative dystonies of the circulatory system. Toniazol stimulates centrally, increases blood flow, oxygen uptake by cerebral vessels, and stimulates the appetite.

Toniazol is an ideal tonic for the management of convalescence and general lassitude, syncope, fainting, and geriatric conditions, e.g. cerebral sclerosis.

Dosage of Toniazol is usually 3-4 teaspoonfuls a day. Further information may be obtained from Newport Trading Corporation (Pty.) Ltd., P.O. Box 1871, Johannesburg.

EPANUTIN PARENTERAL

Parke, Davis Laboratories (Pty.) Ltd. announce the introduction of Epanutin Parenteral, a parenteral form of Epanutin, which is an advance in anticonvulsant therapy and supply the following information:

Indications

Epanutin Parenteral has been used effectively in the control of status epilepticus.

The successful use of a parenteral form of Epanutin in status epilepticus was reported by Murphy and Schwab¹ when almost 10,000 doses had been given over a 5-year period without any undesirable reactions at the site of injection. Such side-effects as did occur were similar to those which may occur following the oral use of Epanutin.

Carter² found that an intravenous dose of 250 mg. of Epanutin controlled most episodes, but some cases needed a further 250 mg. A few patients needed the addition of some other drug, but control was then maintained by intramuscular injections of 250 mg. 6 hourly for 2-3 days.

Epanutin Parenteral is particularly useful for the arrest of status epilepticus in children, since it possesses none of the depressant effects of barbiturates and does not produce local irritation.

Epanutin Parenteral also has wide application in the prophylactic control of seizures in neurosurgery. Intramuscular injections of 100-200 mg. of Epanutin 3-4 times in a 24-hour period have been found to protect patients from convulsions during and immediately after surgery.

Epanutin Parenteral can also be used for routine prophylaxis in neurosurgical patients without a previous history of seizures.

Dosage and Administration

The recommended dosage in status epilepticus is 5 ml. (250 mg. Epanutin) injected into the vein at a rate not greater than

2 ml. per minute. Usually 5 ml. will be sufficient, although as much as 10 ml. may be required.

Maximum effect is reached in approximately 20 minutes and this time should be allowed before regarding the treatment as ineffective. Full effect is frequently delayed if the patient has been given a barbiturate or other sedative previously. When attacks are controlled oral administration may be used.

For prophylactic control of seizures in neurosurgery 2-4 ml. should be injected intramuscularly 3 or 4 times during 24 hours.

Where the patient has already received injections of morphine or barbiturate, Epanutin Parenteral may be withheld until their sedative effects have diminished. Elderly patients enfeebled by vascular disease are particularly sensitive to the depressant effects of sedative anticonvulsants, and should be treated only with Epanutin Parenteral.

Supply

Epanutin is supplied in rubber-capped vials, each containing 250 mg. Epanutin in dry form, with 5 ml. ampoule of special diluent for preparation of the solution.

Further information may be obtained from Parke, Davis Laboratories (Pty.) Ltd., P.O. Box 24, Isando, Transvaal.

1. Murphy, J. T. and Schwab, R. S. (1956): J. Amer. Med. Assoc. **160**, 385.

2. Carter, C. H. (1958): Arch. Neurol. Psychiat. (Chicago), **79**, 136.

BRIEWERUBRIEK : CORRESPONDENCE

VACANCIES FOR TB-CONTACT CHILDREN AT BELLVILLE SUNSHINE HOME

To the Editor: At a meeting of the Cape Western Area Committee of the Christmas Stamp Fund it was decided that I should write to the *Journal* to inform members of the medical profession that there will be vacancies for European tuberculosis-contact children at the Bellville Sunshine Home at the end of 1960.

Several children are leaving to rejoin their parents who have been declared no longer infectious.

We take children from 4 to 12 years of age. Schooling is provided, and an interest in the general health and happiness of the children is the most outstanding concern of the Matron and staff at the Home.

Children have been sent to us from George, Swellendam and other outside areas in the past, as well as from places nearer Cape Town.

Mrs. F. H. P. Creswell

Chairman, Cape Western Area, Christmas Stamp Fund

32 Holyrood
Queen Victoria Street
Cape Town
14 December 1960

SMOKING AND LUNG CANCER

To the Editor: My attention has been drawn to a paper entitled "What is normal?" by Dr. A. G. Ramsay¹ presenting a syllogism relating to the hypothesis that smoking causes lung cancer. He comments in passing that this hypothesis "is extremely problematical to say the least, the true conclusion arising from other reasons most likely quite unrelated to the original hypothesis at all. This is also an example of spurious correlation, which is another story."²

While no one could expect in this essay a discussion of all the evidence put forward in support of the view that smoking causes lung cancer, the choice of this example is regrettable. Instead of taking one of the many possible examples of spurious correlation in medical history, Dr. Ramsay has chosen to discredit an hypothesis which, of all those relating to the aetiology of human cancer, probably has the best support. In so doing he has become an extreme example of what has been described as the 'hit-and-run' critic,³ for he sows distrust without even hinting at a counter-hypothesis that

will fit all the well attested epidemiologic facts on which the cigarette-smoking hypothesis is based, viz.

1. The age-adjusted lung cancer mortality has undergone a tremendous increase and is still rising.

2. This increase is affecting males much more than females.

3. The histological types of tumour are also changing and the increase appears to involve certain histological patterns (Kreyberg's type I) rather than others.

4. When the population is divided according to smoking habits, it is evident (from both prospective and retrospective studies), that cigarette smokers show a greatly increased susceptibility to lung cancer in comparison with non-smokers.

5. The increased susceptibility of smokers is seen in females as well as males.

6. Susceptibility increases with the amount smoked.

7. Susceptibility is reduced in those who give up smoking, as compared to those who do not.

8. Tobacco smoke condensates contain carcinogens, capable of producing cancers experimentally.

The view that this complex of facts can best be explained on the hypothesis that cigarette smoking causes lung cancer, is not limited to the original proponents, but several expert committees have pronounced on the evidence and arrived at the same conclusion.

The possibility that other atmospheric pollutants may cause lung cancer is not contested. If anything, such evidence of environmental carcinogens affecting the bronchi merely renders the smoking—lung cancer hypothesis the more reasonable. The relative weight to be assigned to the different carcinogens will depend on the exposure of each population: at present, smoking is by far the most important in the general population.

Admittedly there has been much opposition to this view, but the responsibilities of a critic do not end when a doubt has been voiced, as Bross² has emphasized. Nevertheless, despite the scepticism expressed there have been few attempts to explain the results in any other way. None of the counter-hypotheses (of genetic differences, psychological selection of those who smoke, bias in case-finding) takes into account the changing incidence of lung cancer, except perhaps the naive one that smoking 'speeds up the rate of living'—which, if true, would presumably imply that it also speeds up the rate of dying, producing increased lung cancer mortality rates, and thus supports the hypothesis it is intended to displace.

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One good result of this vocal criticism has been to sharpen the tools of statistical research. With the present keen instruments the evidence has not been discredited, nor have the conclusions been changed.²

The answer is not a matter for academic differences of opinion in an intellectual vacuum. It is an urgent public health problem. Between 1949 and 1958 in South Africa the number of White male lung cancer deaths (rubric 162 of the International Statistical Classification) has almost doubled, rising steadily from 176 deaths in 1949 to 380 in 1958. This represents a change in standardized rates from 17.55 to 32.51 per 100,000 over a period of only 10 years.

For those unaware of the magnitude of this problem, and unwilling to accept the necessity for any change in our way of life, the current differences in opinion serve simply to support the *laissez faire*, just as the unwarranted doubts of their intellectual predecessors discredited John Snow's clear demographic demonstration of the association between polluted water supplies and cholera.

If the objectors do so on honest grounds, then let them state what further evidence they would require to convince them of the validity of this hypothesis, and what alternative hypothesis will fit the existing facts. Unless this be done, such criticism remains irresponsible if not deliberately obscurantist, and the critic who preaches caution and objectivity may be guilty of culpable opposition to a discovery that our successors may well regard as the great break-through in the prevention of cancer in this half-century.

A. G. Oettlé

Cancer Research Department
South African Institute for Medical Research
P.O. Box 1038
Johannesburg
15 December 1960

1. Ramsay, A. G. (1960): S. Afr. Med. J., 34, 831.

2. Bross, I. (1960): Cancer, 13, 394.

3. Cornfield, J., Haenszel, W., Hammond, E. C., Lilienfeld, A. M., Shimkin, M. B. and Wynder, E. L. (1959): J. Nat. Cancer Inst., 22, 173.

DECIMALIZATION

To the Editor: Gone are the days of the professional fee measured in half-guineas and guineas; even the 'six-and-eight-pence' went out with the horse and buggy carts of a bygone era.

With the advent of decimalization, I would like my colleagues to know that my fees for private patients in general practice will be based on a full 50% mark-up on medical aid rates, namely for the northern suburbs in Johannesburg:

Consultation	R2.25
Visit	R3.00
Night visit	R4.00

In order not to prejudice colleagues who may charge a lower fee, I intend to place the wording 'reduced fee' under the account if a lesser fee than the above is charged for any reason.

I feel strongly that the general practitioners' fees in the area in which I practice are still ridiculously low.

A. D. Bensusan

7 St. Paul's Road
Houghton
Johannesburg
19 December 1960

PROFESSIONAL PROVIDENT SOCIETY

To the Editor: My attention has been drawn to a letter,¹ signed by a colleague *Help-hand*, published in the issue of the *South African Medical Journal* for 26 November, in which he calls upon the Professional Provident Society to reply in the *Journal*.

Help-hand makes a plea for doctors over 51 who are in poor health. He asks, '... is this a professional "provident" fund

or is it a commercial insurance company, only interested in ever-increasing funds?' Before replying to his plea, may I assure *Help-hand* that the Society is very far from being a commercial insurance company. It is an organization run by professional men, including many of his colleagues who give many hours of valuable time to providing a service no insurance company is prepared to give. The unequalled benefits offered are provided at minimal cost, administration expenses being under 7% of income, members receiving, after claims have been met, an average return of nearly 85% of their subscriptions in annual credits to their provident fund accounts. The accumulated funds in these accounts are invested for them and earn interest, which is compounded annually, at between 5½ and 6%. Whose interests, if not those of the members, are served? The ever increasing membership of the Society is evidence of the value of its benefits and a tribute to its management.

In answer to *Help-hand's* plea, the Society does look after the doctor who is sick and over 51 and looks after him until he reaches 65. Many members are today over 51. They had the foresight to join when they were still healthy and under 51. The Society has now been in existence for 20 years, which means that any doctor who is today 65 or under could have been a member if he was in good health when he applied for membership. I can assure *Help-hand* that if the Society did admit people over 51 and covered them to age 65, continuous sickness insurance would become an uneconomic proposition.

It is obvious that pleas such as this one would not be made if members of the Medical Association were informed of the value of early membership of the Society. I can think of no better way of bringing the true facts home to doctors, than by Editorial and similar comment in the *Journal*.

Lastly, I should like to refer to a report on Retirement Annuity Funds which appeared in the same issue of your *Journal* as *Help-hand's* letter. The Society's Fund was misrepresented in this report, and in the interests of our colleagues, I would request you to publish the enclosed statement, giving relevant details of the Society's Fund.

THE PROFESSIONAL PROVIDENT SOCIETY OF SOUTH AFRICA: RETIREMENT ANNUITY (PENSION) FUND

To correct any wrong impression which may have been created by the report on Retirement Annuity Funds which appeared in the *Journal* for 26 November, the following information is given concerning the Retirement Annuity (Pension) Fund of the Professional Provident Society of South Africa.

1. In the event of death of a member occurring before the retirement date, the Society's Fund guarantees repayment of all contributions actually paid, together with compounded interest at 4% *per annum* to the date of death. The more usual practice with these funds is to repay the contributions with compounded interest at 3% *per annum*. Some schemes are available where only the contributions are returned without any interest. While this allows rather higher pension benefits, the loss of interest where death occurs before retirement, particularly if shortly before retirement, is considerable. For example, the interest on a contribution of £300 *per annum* paid for 36 years compounded at 4% *per annum* is approximately £13,411. A similar contribution paid for 16 years would yield interest amounting to approximately £2,009.

2. The Society's Fund guarantees the annuity benefits for 5 years should death occur within 5 years after reaching the retirement age. If specially required, quotations can be given where the annuity benefits are guaranteed for 10 years. It should be borne in mind, however, that where a longer guarantee period applies, a reduced annuity benefit per unit contribution is paid.

3. The paid-up benefits available under the Society's scheme are a feature of the Fund. To the professional man who may for legitimate reasons such as permanent departure from South Africa, or reduced income, be forced to discontinue contributions, this is an important safeguard.

It may be mentioned that the Professional Provident Society of South Africa, in cooperation with the majority of its associated professional organizations, played an important part in achieving the tax concessions recently granted in respect of

contributions by self-employed persons for retirement annuity purposes. In establishing its own Retirement Annuity Fund, the specific needs of professional persons were taken into account and members' interests were, and will continue to be, the first concern of the Board of Trustees, which is composed of members of the professions including the nominated representatives of the various professional associations.'

Eugene Baskind, M.D. (Rand)
Chairman, Professional Provident
Society of South Africa

P.O. Box 6268
Johannesburg
20 December 1960

1. Correspondence (1960): S. Afr. Med. J., 34, 1021.

THE NEWLY QUALIFIED DOCTOR AND THE MEDICAL ASSOCIATION

To the Editor: I have read with interest your Editorial on 'The newly qualified doctor and the Medical Association' and fully agree with the points you have mentioned.

No doubt the suggestion I propose to put to you has been put before and you may well be doing something about it although, as far as I know, nothing much is being done in this town. I well remember, when I qualified in Edinburgh many years ago, that all graduands were invited by the British Medical Association to a very simple afternoon tea party and, as far as I remember, very nearly 100% of graduands attended. At this event many well known doctors in Edinburgh attended and made a point of welcoming us and assisting us to join the Medical Association. A very short talk of about 5 minutes explained the advantages of the Medical Association, advised us as to what registration had to be carried out and particularly gave us very sound advice about joining some form of medical defence union and the necessity of taking out some personal insurance. I am quite sure that, as a result of this, they got a large number to join the Medical Association at once.

Further, some 4 or 5 years after I qualified, I went to a hospital appointment in Birmingham and, within 1 week of my arrival there, the Secretary of the Medical Association asked me to call on him at the Medical Association offices, made me very welcome and, during the next few months, arranged for me to meet some of the honoraries not necessarily connected with the hospital in which I worked. I was made to feel very conscious of the fact that I belonged to a most honourable profession and one which held out the hand of friendship, so that there was never any doubt whatsoever in my mind of the importance and necessity of belonging to the Medical Association. I realize that in this far flung country it may be difficult to organize all this and no doubt it will throw an extra burden on the already overworked secretaries, but perhaps in each larger centre there could be a small entertainments committee which, with the help of the wives, could bring many shy young graduates, who are in a strange town, into the body of the Association.

N. A. Steere
O.B.E., M.B., Ch.B. (Edin.), M.R.C.O.G.

724-738 Permanent Building
34 Field Street
Durban
19 December 1960

1. Editorial (1960): S. Afr. Med. J., 34, 1049.

URETERIC INJURIES IN GYNAECOLOGY

To the Editor: I read your Editorial,¹ Mr. Jacobson's excellent article² and Professor Crichton's letter³ on 'Ureteric injuries' with great interest, and should like to make a few comments on this subject.

I feel that disasters of this type can happen to the most skilful and experienced of surgeons, and I remember, very vividly, watching a leading London gynaecologist doing a Wertheim operation and cutting both ureters. If it could happen to a man of such calibre, it could happen to anyone, and I am sure that any surgeon, if he does sufficient pelvic

surgery, may sooner or later in his career come up against such a misfortune.

Professor Crichton states that this disaster is much more likely to happen to the 'occasional' hysterectomist and I agree with him entirely. In my series of 15 cases, 4 were referred by specialist gynaecologists and the other 11 by capable surgeons with varying experience in hysterectomies. In a couple of these cases, the experience, I am afraid, was rather limited. In some of these cases, I cannot help feeling that the disaster might have been averted had the surgeon concerned had more experience of pelvic surgery.

As regards prevention of the calamity, I note that Professor Crichton states that there should be a dissection to display the pelvic course of the ureter. Whilst I agree with this statement it fills me with some alarm, as I feel that it may well be misinterpreted, and an over-enthusiastic extensive stripping may be done which might lead to interference with the blood supply of the ureter. Possibly insertion of ureteric catheters with limited careful dissection of the ureter preserving its blood supply and not stripping it, would be adequate, so that the surgeon could know exactly where he is before applying his clamp to the uterine vessels.

Finally, I must take issue with Professor Crichton in his statement that current urological practice is defeatist in this type of case and favours nephrectomy. This, I am certain, is incorrect and in my own small series of 15 cases only 1 needed a nephrectomy. The other 14 were all successfully repaired—2 by end-to-end anastomosis of the cut ureter at the time of the operation and the remainder by re-implantation into the bladder. Two of these cases required bladder flaps (Boari flaps) to bridge the defect in the ureter.

I am sure that the aggressive approach, as he describes it, where a repair is done, is favoured by all urologists whose aim it is to conserve renal tissue wherever possible.

May I, before closing, mention 3 cases with somewhat unusual features which may be of interest.

In the first case the ureter was injured during a presacral neurectomy. The first intimation that anything was wrong was when the patient presented herself 3 weeks later with an enormous abdominal swelling which proved to be about half a gallon of urine in the retroperitoneal space. This was the case where a nephrectomy was done, as the ureter was damaged rather high up and was beyond repair.

The second case was rather fantastic. In this case, a capable and experienced surgeon, obviously on an off day, found to his horror that he had just about removed a distended bladder in the belief that it was an ovarian cyst. When I was called in, the bladder was attached only by the trigone, both ureters were severed, as was the blood supply to the bladder. In this case, both ureters were re-implanted and the whole devascularized dome removed, and the bladder repaired. Subsequently a hysterectomy was done to remove an impacted fibroid which was the original undiagnosed cause of all the trouble and finally the bladder was of such small capacity that it had to be enlarged with an ileal loop. The final result was satisfactory, even if the approach was rather unorthodox!

The third case followed an apparently innocuous dilatation and curettage, where the surgeon had removed a rather large 'divot' with his curette. The resultant haemorrhage was uncontrollable and the abdomen was opened in an attempt to stop the bleed. Subsequently a hysterectomy was performed, as a desperate measure to control the bleeding, and the patient was left with both a vesicovaginal and uretero-vaginal fistula. These were both eventually satisfactorily repaired.

I think that the lesson to be learnt, now that subtotal hysterectomies are out of favour, is that the more difficult total hysterectomy is an operation to be treated with the greatest respect. The possibility of ureteric injury should be constantly in the surgeon's mind, and every precaution should be taken to prevent this disaster from happening.

I. V. Rogoff, F.R.C.S.

1 Balmain
Belmont Terrace
Port Elizabeth
22 December 1960

1. Editorial (1960): S. Afr. Med. J., 34, 907.

2. Jacobson, I. (1960): *Ibid.*, 34, 901.

3. Correspondence (1960): *Ibid.*, 34, 1068.

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